

# MINING WORLD

**ANNUAL  
FORECAST  
&  
REVIEW**

## MINE DEVELOPMENT AND DIRECTORY NUMBER

**DIRECTORY  
OF  
ACTIVE  
MINES**



**APRIL 15, 1953**

**VOL. 15 No. 5**

**\$2.00 a copy**

### **MORE EIMCO LOADERS**

are being used by more mining companies every day. Eimco's always load faster, cost less to maintain and stay on the job longer.

## **EIMCO**

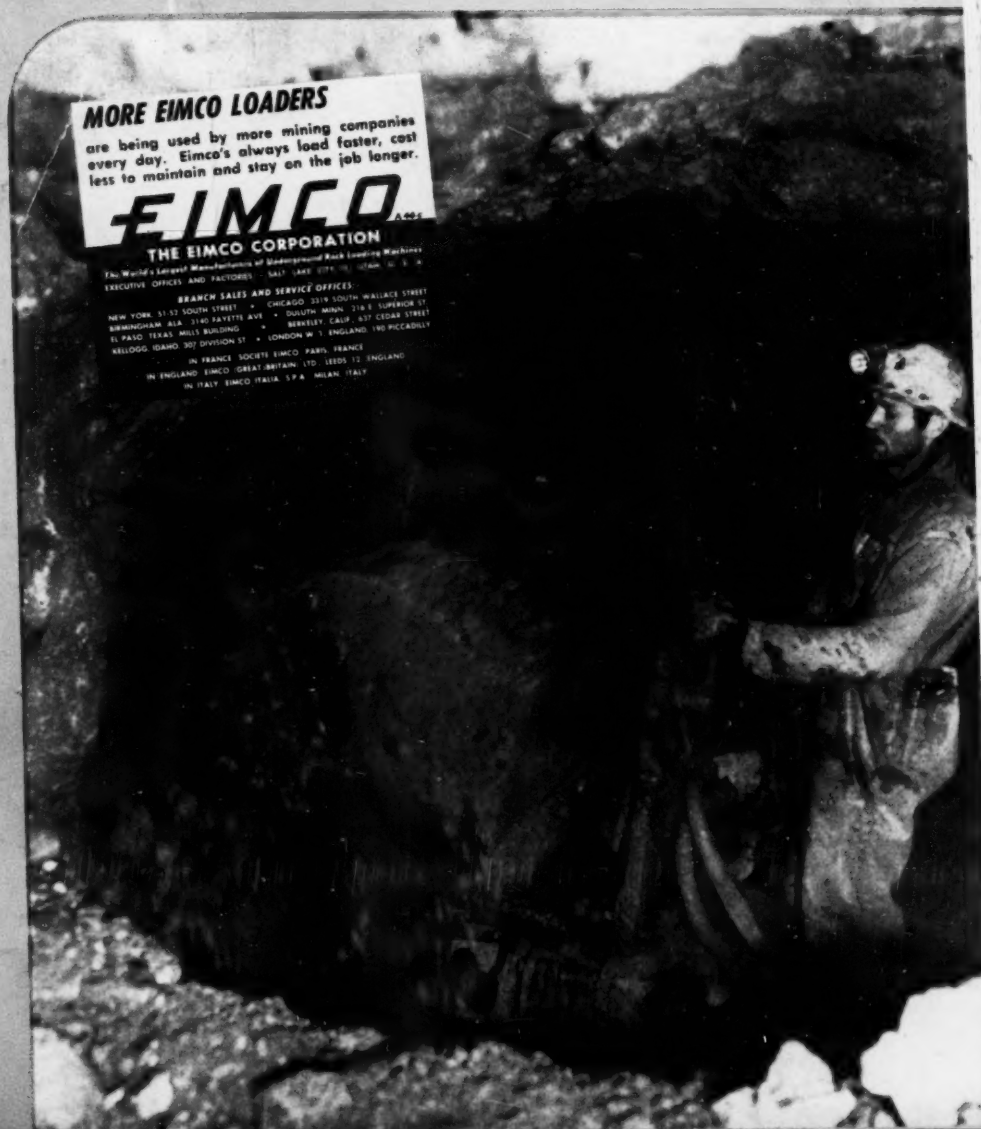
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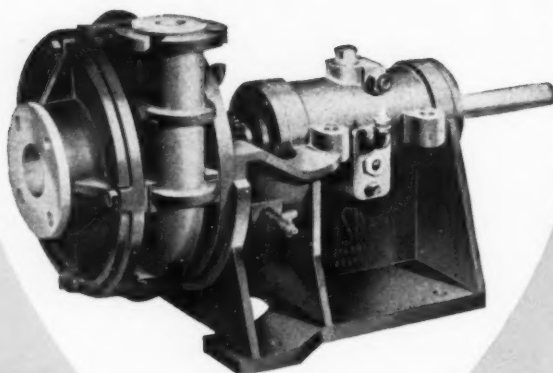


# THE HEART OF THE PROCESS

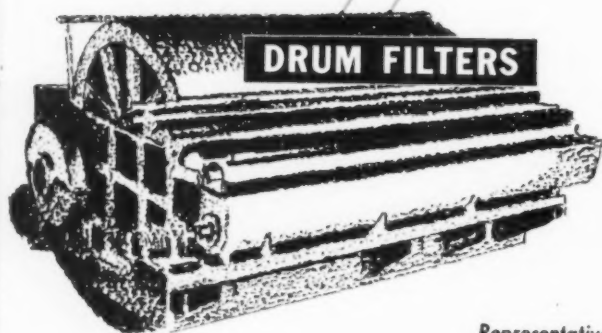
Proper functioning of each component in a process depends on the kind of steady performance that you get from Hydroseal Pumps . . . and the kind of experience that assures the proper application of control equipment. Ask an operator who uses Hydroseals. Then ask our engineers to help you.



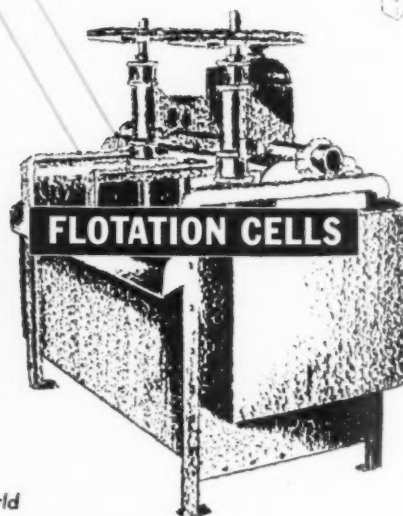
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SAND, SLURRY & DREDGE PUMPS  
MAXIMIX RUBBER PROTECTED



*Consult a Joy Engineer*

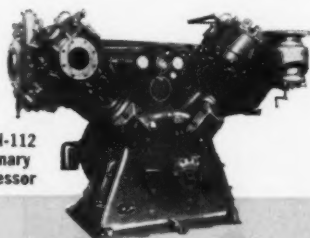
## FOR THE WORLD'S MOST MODERN TYPES OF UNDERGROUND MINING EQUIPMENT

DESIGNED TO HELP YOU INCREASE  
PRODUCTION AND REDUCE COSTS

JOY Equipment for the metal mines includes a complete line of slushers, hoists, continuous-type trackless loaders, shuttle cars, shovel loaders, drillmobiles and jumbos, core drills, cadmium-plated rock drills, stationary and portable air compressors, mine fans and blowers. Each unit is a leader in its field—highly compact, modern and efficient—with proved ability to increase tonnage, improve your costs, and require the least possible maintenance and attention in heavy-duty service. ● Put your problems up to JOY—the world's largest manufacturer of underground mining equipment for coal, metal and non-metallics. **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: **Joy Manufacturing Company (Canada) Limited, Galt, Ontario.**

WRITE FOR BULLETINS

JOY WN-112  
Stationary  
Compressor



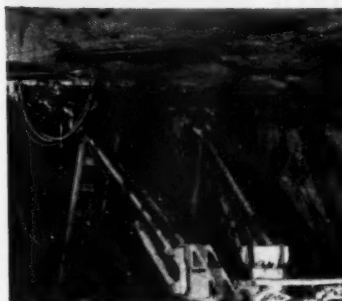
JOY Air Compressors include a complete range of portable types up to 630 CFM, and Stationary models up to 7312 CFM.



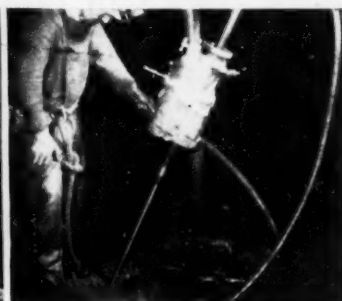
BF-212 Double Drum Slushers, electrically-driven. Models of hoists and slushers to suit every need or condition.



Hydro Drill Jib, separate or in single or multiple units on track-mounted jumbos. Standard or long-feed drill cradles.



JOY self-propelled Drillmobile, mounting twin Hydro Drill Jibs, meets all needs and gives you lowest-cost footage.



The Joy HS-15—a high speed drill designed specifically for underground blast hole drilling.



For modern, trackless mechanized mining, the efficient team of JOY Shuttle Cars and continuous-type Loaders.



Model I-16 Portable AXIVANE Blower. Joy portable blowers are available in five sizes—from .4 H.P. to 5 H.P.



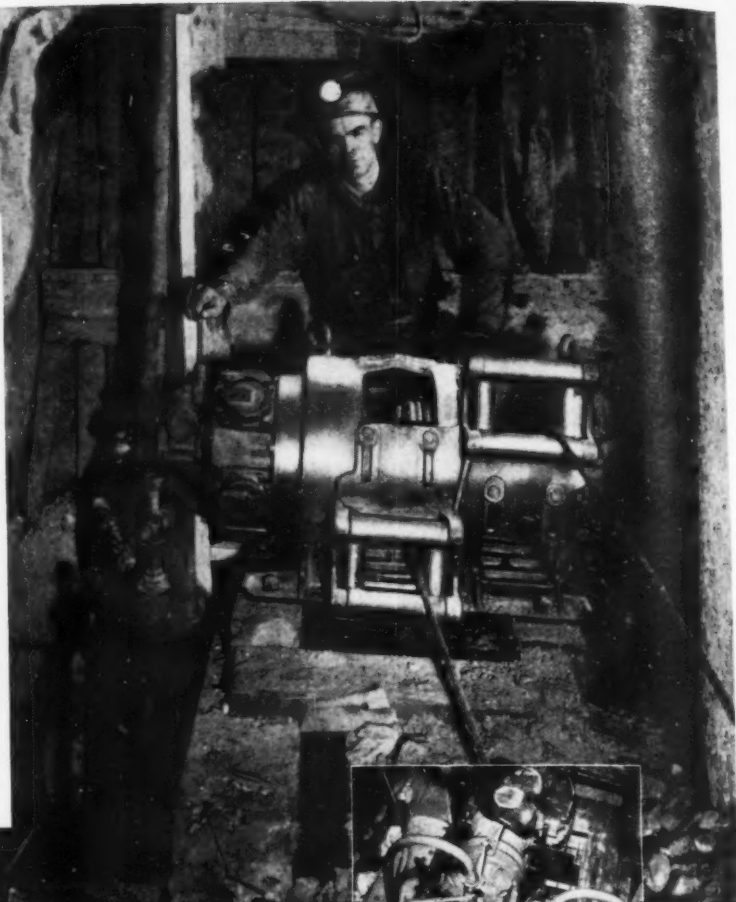
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# JOY

WORLD'S LARGEST MANUFACTURER OF  
UNDERGROUND MINING EQUIPMENT

W&D M4610

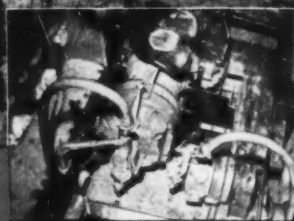
**SPEED and POWER**  
under  
**FINGER-TIP CONTROL**  
with  
**GARDNER-DENVER**  
**AIRSLUSHERS**



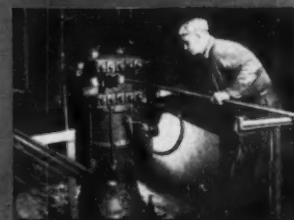
other  
**GARDNER-DENVER**  
ways to reduce  
mining costs:



Put tugging power where  
you want it, with compact  
Air Hoist.



Speed shaft sinking with the  
Double Drum HMS Shaft  
Mucker.

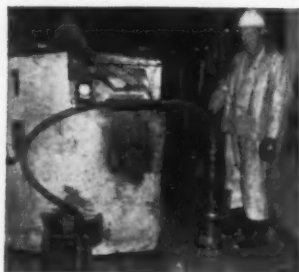


Shape drill steel on the fast-  
acting DSS Sharpener.

Handle water with the pneu-  
matic pump that keeps grit  
out of the seal and bearing  
—the VP4.



Protect rock drills with the  
L012 Automatic Line Oilier.



Write for Bulletins describing Gardner-Denver Mining Equipment.

**GARDNER-DENVER** SINCE 1859

Export Division: 233 Broadway, New York 7, N.Y. U.S.A.

Gardner-Denver Company, Quincy, Illinois, U.S.A.

**THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS**  
[World Mining Section—2] **MINING WORLD**

Including the Export Edition

WORLD MINING

# MINING WORLD

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#### EDITORIAL AND EXECUTIVE OFFICES

121 Second St.

San Francisco 5, Calif.

GA 871 1-5887

General Manager, San Francisco M. F. HOLSINGER

Editor GEORGE O. ARGALL, JR.

Field Editor R. L. BURNS

News Editor J. M. TAYLOR

Assistant News Editor A. SENZEK

Product Editor J. A. CHEESMAN

District Manager, Chicago KAREL WEGKAMP

District Manager, New York H. L. WALDRON

Production Manager J. M. STALON

Assoc. Editor, Vancouver CHARLES L. SHAW

New York 17 370 Lex. Ave., Murray Hill 3-9295

Chicago 26 1791 Howard, Rogers Park 4-3420

Los Angeles 17, Calif. 815 S. Wiltner St.

Vancouver, B. C. Royal Bank Bldg., Marine 7287

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#### Staff Correspondents

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Can your  
rear-dumps  
match these  
performance  
records?



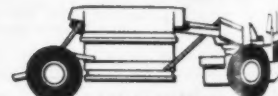
**TOURNADOZER\***  
186 h.p., 4-wheel drive,  
speeds to 19 m.p.h.



**TOURNAPULL\***  
7, 16, 27, 42-yd. capacities;  
speeds, 28 to 39 m.p.h.



**TOURNAROCKER\***  
9, 18, 35, 50-ton rear-dump haulers



**TOURNAHOPPER\***  
18 and 27-yd. bottom-dump haulers



## CALIFORNIA MOUNTAIN QUARRY

*... bought 2 "C's"*

Portland Cement Co. tried 1 C Tournarocker... liked it so well they bought 2 "C's" for hauling rock from the cramped quarters of their main-face limestone quarry. Working at an altitude of 3800', each "C" carries 16 tons per load... makes five 400' cycles every 50-min. hour.

## 3,000,000-YD. PA. MINE JOB

*dumps ½ min. faster than trucks*

J. Hubert Bazley Inc., Pottsville, Pennsylvania, strips overburden at their Mt. Carmel coal mine with 3 C Tournarockers. On 2100' haul, each "C" removes 15 bank yds. of sand, clay and rock every 7.4 minutes. With electric dump, fast spotting "C" unload ½ minute faster than trucks.

## 540,000-YD. OREGON HIGHWAY

*moves 3600 yds. in 10 hours*

On relocation of Highway 99 near Canyon Creek, Carl Halvorson, Portland, moved 3600 pay yds. of rock every 10-hour day with 3 C Tournarockers. Each "C" averaged 16 m.p.h. on 1650' haul. Time of 43 minutes for the 3300' cycle included 85 seconds to load 10 pay yds. and 15 seconds to dump.

## 245,000-YD. N. H. HIGHWAY

*392 yds. in 7 hrs. on 3-mi. cycle*

Frank W. Whitcomb Construction Corp., North Walpole, used 2 C Tournarockers on relocation of Rt. 103 near Newbury. These rigs moved 392 pay yds. of rock per 7-hr. day over 3-mile cycles. Each 186 h.p. "C" hauled 10 pay yds. per load... completed a cycle every 18 minutes despite heavy traffic.

## CLAY QUARRY

*moves 100 tons of rock hourly*

At U.S. Quarry Tile clay pit, Contractor Adolph Bollen, Canton, hauls 100 tons of overburden hourly with his 122 h.p. D Tournarocker. Rig carries 9 to 11 tons per load. Haul speeds average 14 m.p.h. over a 700' haul (which includes grades up to 2%), for a total of 11 trips per 50-minute hour.

## 100,000-YD. OREGON HIGHWAY

*55 pay yds. hrly. on 8300' cycle*

Using 2 "C's", Babler Bros. & Rogers, Portland, licked narrow, congested load and dump areas... heavy traffic... adverse grades of 5%... on their Columbia River Hwy. job. Loaded by 2½-yd. shovel, each "C" got 10 yds. of rock in 5 passes... hauled 55 pay yds. hourly over 8600' cycles.

## WEST VIRGINIA COAL MINE

*hauls 240 tons per hour*

Red Parrot Coal Co., Prenter, uses a C Tournarocker to haul slate from refuse hopper to tailings dump. On 3000' cycle, "C", loaded with 15 tons, makes 16 trips per 50-min. hour. Output averages 240 tons hourly. With this production, "C" handles as much work as three 6 to 8-ton dump trucks.

## 220,000-YD. COLORADO HIGHWAY

*licks rain, cramped quarters*

To move granite at 8300' on U.S. 280 near Granby Dam, Harner & Switzer worked 3 "C's" through daily rains, along narrow ledges... spotting them into loading position in average of 24 sec. Big, 4-wheel air brakes, positive power steer let operators haul safely along narrow ledges at high speeds.

## 200,000-YD. W. VA. TUNNEL JOB

*turns where trucks can't*

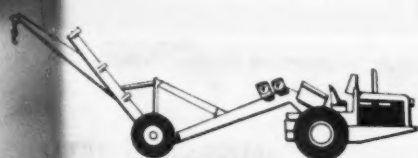
Bates & Rogers Construction Corp., Chicago, teamed 2 D Tournarockers and 2 trucks to haul muck and shale for B. & O. railroad tunnel near Clarksburg. While trucks needed skid plate to turn inside 31' wide tunnel, "D's" made 90° turns (in 12'4" radius) and easily maneuvered under shovel.

## 140,000-YD. VIRGINIA HIGHWAY

*interchanges rear-dumps, scrapers*

Robertson, Bolen & Fowler, Buchanan, W. Va., interchange rear-dumps, scrapers behind their 122 h.p. "D" prime-movers. On U.S. 11 near Lexington, 2 "D's" with rear-dumps spotted quickly at cramped roadside cut where trucks couldn't position without jockeying. Typical 2000' cycle took "D's" 5½ minutes.

Tournarocker — Trademark Reg. U. S. Pat. Off. R-232-J5



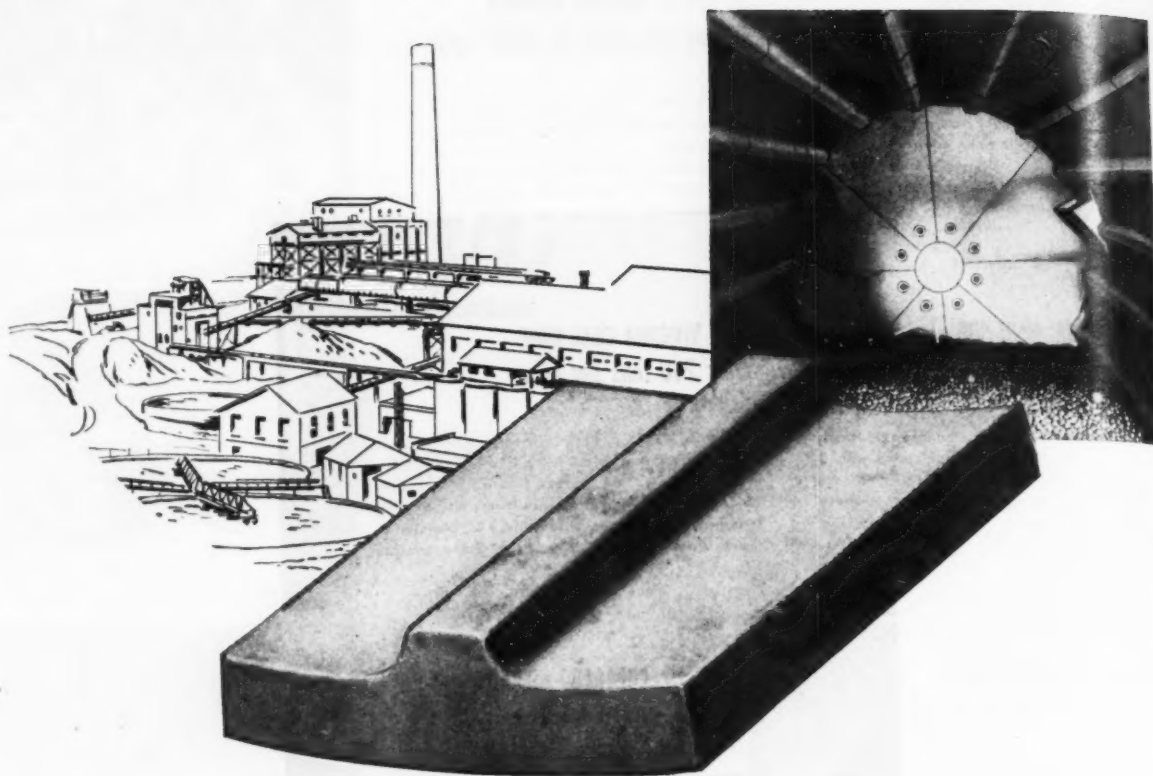
**TOURNACRANE\***

10, 20, 30 and 40-ton lift capacities



**R. G. LeTOURNEAU, INC.**  
PEORIA, ILLINOIS

\*Trademark Reg. U. S. Pat. Off.



## this LINER boosted production 35%

### AMSCO Ball Mill Liners

#### Reduced Down-Time, Increased Production...

A large West Coast cement producer found that Ball Mill Liners were causing expensive trouble. Liners were thick—over 3 inches. This meant reduction in mill capacity. Thick liners also meant tremendous weight. Both thickness and weight reduced production and efficiency. *Liners wore rapidly*, too, causing frequent, expensive replacement jobs, with costly labor and material. And added to the bill was lost production due to mill down-time.

Well-known for their skill in handling impact and abrasion-resistant alloys, AMSCO engineers and foundrymen were consulted.

AMSCO solved the Ball Mill Liner problem.

AMSCO designed a new, light, thin—1 inch thick—liner, which because of lightness and thinness increased mill capacity, heightened efficiency. The new liners lasted beyond all expectations and in addition the segments were easier to install. These factors, plus reduced replacement down-time, have been responsible for a 35% increase in production.

AMSCO is the largest producer of Manganese Steel, "the toughest steel known," which has proven itself under countless abrasion and impact situations. And where the service conditions require it, AMSCO also produces Chromium-Molybdenum and Chrome-Manganese alloys.

If you have a tough wear problem and suspect that there may be a better alloy for your purpose, you are invited to write to AMSCO for further information.

AMERICAN

**Brake Shoe**

COMPANY

**AMERICAN MANGANESE STEEL DIVISION**

382 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.  
AmSCO Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

## DENVER "SUB-A" FLOTATION

Complete Milling Equipment — from testing, to feeder, to dryer!

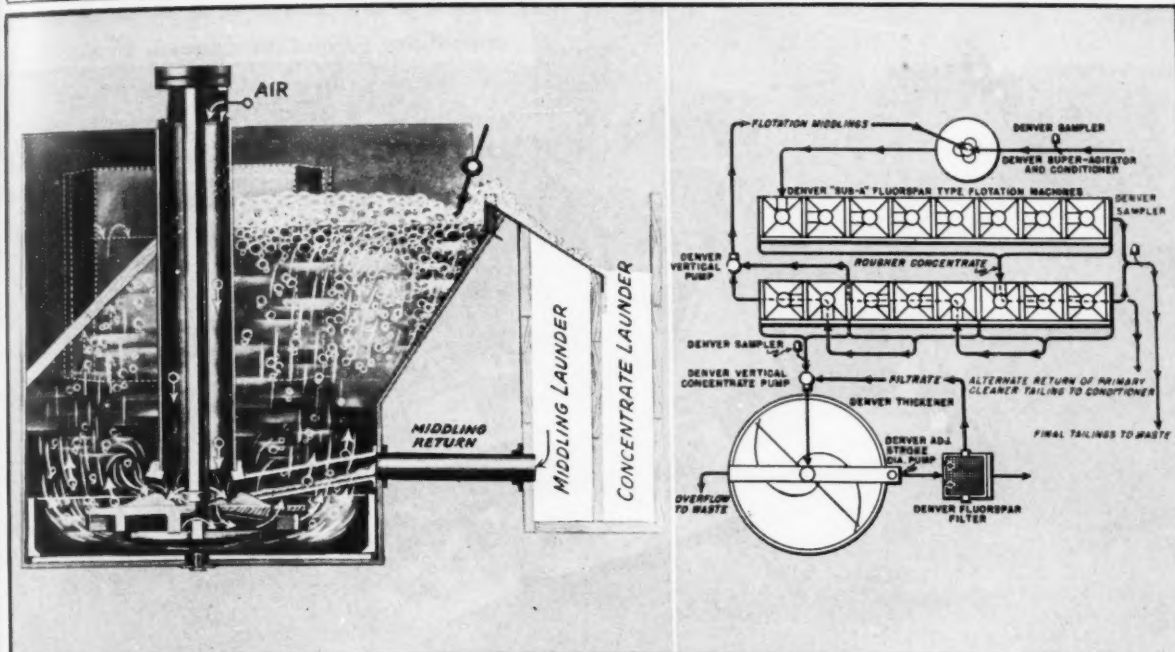


Photo at left shows cut-way view of Denver "Sub-A" Flotation Cell. Note how feed pipe enters at low level discharging on to impeller. Flowsheet at right illustrates flexibility

in returning froth products for additional cleaning without use of pumps or step-downs. Note complete control of cleaner-cell tailings as they are recirculated.

## Exclusive Principle of Denver "Sub-A" Flotation Permits Gravity Return of Middlings and Froth Without Pumps or Step-Downs

Clean, high grade concentrates and much lower costs are made possible by Denver "Sub-A" Flotation Machines. With cells all on one level, you can return concentrates to cleaner cells by gravity flow, and recirculate cleaner tailings. This completely eliminates expensive pumps and step-downs. Only Denver "Sub-A" Flotation offers these exclusive features. Positive recirculation — without "short circuiting" — gives you lower tailing and highest grade concentrates.

### GRAVITY RETURN

The high original costs and maintenance of pumping or stepped down cells are unnecessary when you use Denver "Sub-A" Flotation. This is because the feed pipe is located near the bottom of each Cell—directly over the impeller. Since the location of this feed pipe is low, it is a simple matter to return middling froth by gravity down a launder into a cleaner cell six to eight cells away. The low level of the feed pipe also makes it possible to re-

circulate tailings from cell to cell— without pumps.

Thus, in Denver "Sub-A" Flotation Machines, cell-to-cell gravity flow and cell-to-cell middlings return is easy. You thereby eliminate pumps and step downs...and get better metallurgy...and have the flexibility you need to meet changing conditions.

### HIGHER GRADE CONCENTRATES

Another important feature in all Denver "Sub-A" Machines which allows you to get higher values is the positive circulation feature. Positive circulation means that all material entering a Denver "Sub-A" Cell must enter through the feed pipe directly over the impeller. Thus any feed, middling return, froth return or coarse sand product gets maximum exposure to flotation treatment. As a result, Denver "Sub-A" Flotation gives you lower tailings and higher grade concentrate.

Write or wire—find out about the many other advantages of Denver "Sub-A" Flotation which help you get greatest profits with lowest costs.

Free Technical Bulletin Sent on Request

Over 25 years of Flotation Engineering



# DENVER EQUIPMENT COMPANY

1400 SEVENTEENTH ST.

DENVER 17, COLORADO

MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

[World Mining Section—7]



# NEW TRENDS IN MINING MECHANIZATION



**Stockpiles processed ore.** HD-20 Tractor also builds access roads . . . maintains tailings dumps . . . cleans up around shovels . . . cuts drainage ditches . . . digs sludge basins and sluice-ways . . . builds reservoirs and pond dams . . . clears and levels building sites . . . tows equipment.



**Loads ore underground.** HD-5G Tractor Shovel also loads sand and gravel, other bulk materials . . . cleans up around conveyors and hoppers. Special materials buckets, bulldozer blades, other attachments available. Tractor shovels available for all sizes of Allis-Chalmers crawler tractors.



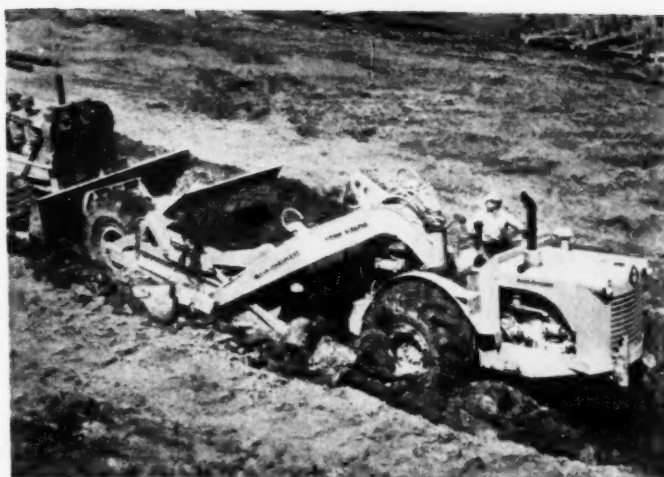
**Builds and maintains haul roads.** AD-40 Motor Grader levels pit bottoms . . . digs and grades for drainage . . . scarifies . . . prepares dragline sites. Gasoline-powered Model D Grader also available. Handles routine road maintenance — light construction, etc.



**T**ODAY's demands on mining production require the selection of equipment of the broadest versatility. Allis-Chalmers offers a complete range of material moving and handling equipment — including four sizes of diesel crawler tractors, motor graders, pull scrapers, high-speed Motor Scrapers and Motor Wagons — designed to fit your particular mining applications and to deliver the highest possible output.

Here are some on-the-job views with a few of the many ways in which these modern machines are speeding production and lowering costs.

**Hauls rock overburden.** TR-200 Motor Wagon hauls tailings, sand, gravel, silicon, lead and zinc ore. Unit travels fast "off-road" with capacity loads . . . dumps clean every time with 18-ton, hydraulic-controlled rear-dump body. Sides channel-ribbed for rigidity.



**Strips overburden.** 13-yard heaped capacity TS-200 Motor Scraper also loads, hauls material from open pit . . . clears and levels for camp sites and drill setups . . . levels and grades building sites . . . hauls in supplies. Larger 18-yard heaped capacity TS-300 also available.



**Levels tailings dump.** HD-20 Tractor with pull-type scraper also loads and hauls ore-bearing material — handles large-scale stripping jobs. Exclusive Allis-Chalmers hydraulic torque converter on HD-20 gives higher output, less upkeep on pulling, pushing and dozing work.

**Complete line of pull-type scrapers available, from 2-yard to 18-yard sizes.**

*Your Allis-Chalmers dealer will be glad to analyze your equipment needs and help you select the right machines for your jobs. See or phone him soon to watch these machines in action.*

**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

# DULIN BAUXITE

*"highly  
pleased with  
**4 LORAINS**"*



This big open mine is the Ratcliff Pit near Sweet Home, Arkansas, one of the operations of the Dulin Bauxite Co. of that city. Dwarfed in this huge pit is a 1-yd. Lorain 50-I shovel slugging away, digging and loading tough bauxite day after day.

Lorains are not strangers to Dulin Bauxite. Here's proof in the words of Vice President L. D. Riffe, "The company now owns 4 Lorains and we have been highly pleased with their performance over a period of several years." Pictures of 2 of their Lorains are shown at right.

The features that insure such Lorain performance are many. Experienced shovel men like the fast, snappy action for big production. They like the ample power to get heaping bucket loads. They like the smooth, handling ease that adds to yardage and lessens operator fatigue. Best of all, mining men have seen Lorains on the job for years—some as many as 30 and 35—they know there's quality that safeguards their investment.

You'll be pleased with Lorain performance, too. You will like the wide selection of shovels through the 2-yd. class—the many crawler and rubber-tire mountings to fit job and work conditions. And when you call on your Thew-Lorain distributor, you will see how well he is equipped to back up your Lorain on the job. Why not contact him for your next shovel-crane need?

**THE THEW SHOVEL CO., LORAIN, OHIO**

**MINING MEN PREFER THE NAME . . .**



This is a close-up of the Dulin husky 1-yd. Lorain 50-I loading bauxite.



Here's the popular Lorain TL25-K working in the Dixon Pit of the Dulin Bauxite Co. near Sweet Home, Arkansas. This 3/4-yd. shovel features fast, snappy digging.

**THEW  
LORAIN®**

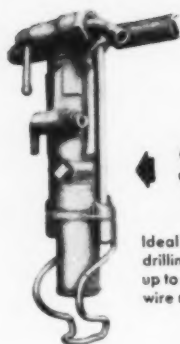


A LITTLE  
BIT  
GOES A  
LONG  
WAY



**CHRISTENSEN**  
DIAMOND PRODUCTS CO.

1937 SOUTH 2nd WEST • PHONE 6-8738 • SALT LAKE CITY UTAH



◀ **30 lb.**  
**No. 28**

Ideal for light to medium drilling and block holing up to 6 feet deep. Spring wire retainer optional.



# SINKER ROCK DRILLS

**DO MORE WORK —  
in less time — at lower cost!**

IN ALL THE WORLD there are no other tools in their class to equal the performance and endurance of THOR Rock Drills! For Shaft Sinking, Block Holing, Augering, or Exploration, THOR tools are **FIRST IN THE FIELD.**

Famous lightweight, short-travel tubular valve provides **EXTRA POWER** with minimum air consumption for *each* of these great Sinker Rock Drills. All have cushioned piston action, powerful blowing, strong rotation, automatic lubrication . . . giving greater speed, power and ability to do more work, in less time, at lower cost.

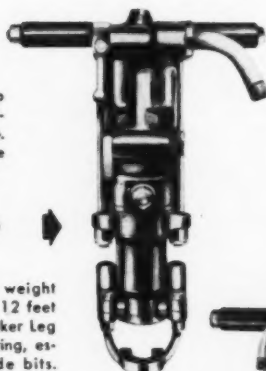
For on the job demonstrations consult the Thor distributor nearest to you.

**Thor Power Tool Co.,  
Aurora, Illinois, U. S. A.**



◀ **35 lb.**  
**Nos. 33 and 35**

Designed for secondary drilling up to 8 feet deep. Light weight for drilling horizontal and upward holes. No. 35 is equipped for full line pressure blowing.



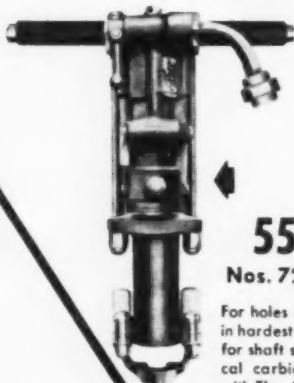
▶ **45 lb.**  
**No. 38**

All-purpose, medium weight Sinker for holes up to 12 feet deep. Mounted on Sinker Leg can be used for Drifting, especially with carbide bits. With Thor Stoper Leg, can be adapted to stoping.



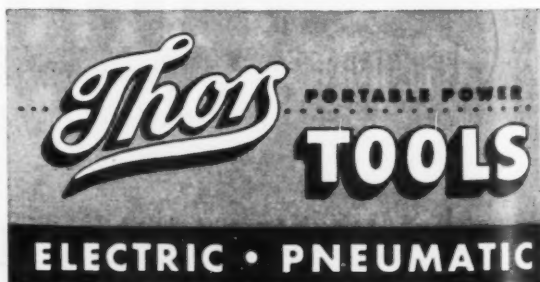
▶ **80 lb.**  
**No. 85B**

Where conditions call for a hand-held drill to sink holes up to 25 feet deep in hardest rock, this husky, powerful sinker is your best tool for heaviest duty service. Recommended for heavy duty shaft sinking.



◀ **55 lb.**  
**Nos. 72 and 75**

For holes up to 20 feet deep in hardest rock. Recommended for shaft sinking. For economical carbide bit drifting, use with Thor Sinker Leg or Air Bar Feed.







**3**

**GRADES  
OF  
SELECTED  
DIAMONDS**



**2**

**IMPROVED  
TYPES OF  
CAST-METAL  
MATRICES**



**2**

**MODERN  
POWDERED  
METAL  
MATRICES**



#### DOUBLE-TUBE REAMING SHELL

Available in all standard sizes for use with all types of double-tube corebarrels. Special sizes and types as required. Inserts are tough tungsten-alloy matrix set with carefully selected diamonds.



#### STANDARD CORING BIT

Available in four different matrices and three different grades of correctly-sized diamonds, EX, AX, BX and NX sizes carried in stock. Larger sizes and special designs furnished to meet any specifications or requirements.

#### IMPREGNATED CORING BIT

Especially suitable for drilling through hard, broken or extremely abrasive ground, where diamond loss from surface-set bits might be excessive. EX, AX, BX and NX sizes carried in stock. Larger sizes and special designs as required.



#### SERIES "M" CORING BIT

For use with Series "M" Double Tube Corebarrel as developed by Sprague & Henwood, Inc. to meet the need for a higher percentage of core recovery from soft, broken or friable material than can normally be obtained with a standard double-tube corebarrel. Available in all four types of matrix and three different grades of diamonds. Also in a complete range of "impregnated" type bits. EX, AX, BX and NX sizes carried in stock.

#### SINGLE-TUBE REAMING SHELL

Available in all standard sizes for use with all types of single-tube core barrels. Larger sizes and special designs as required. In order to fill orders promptly for either single- or double-tube reaming shells we must know the make and model of the core barrel.

#### CASING-SHOE BIT

Available in the same wide range of sizes and types as our standard casing bits and designed so that they can be left on the end of the casing in the hole while drilling is continued through them with the corresponding standard size of core barrel and bit.

#### STANDARD CASING BIT

Available in all standard sizes with a choice of four different matrices and three different grades of selected diamonds. Larger sizes and special designs furnished as required. Must be removed before continuing to drill with core barrel and bit.

## We KNOW What These Bits Can Do Because Our Own Drilling Crews Use Them

For more than sixty years Sprague & Henwood, Inc. has been a leader in the field of Contract Diamond Drilling and our crews—operating throughout the United States and many other countries—have constituted the best possible "laboratory" for proving the quality of Sprague & Henwood bits. They demand the best and we can't afford to give them anything less.

As manufacturers, therefore, we are in the highly advantageous position of KNOWING the relative value of every Sprague & Henwood bit for any given drilling condition, from the performance records of our own crews. And this valuable information is passed on to bit purchasers without charge or reservation.

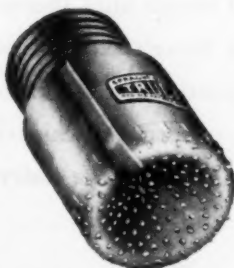
If you use diamond drilling bits we want you to have a free copy of our new Bulletin No. 320. Write for it today and tell us about your drilling conditions. Our experienced executives welcome opportunities to make money-saving recommendations.

### CONTRACT CORE DRILLING

is a very important phase of our business. This includes exploratory drilling for coal and ore — also foundation testing for bridges, dams and other heavy structures. Experienced crews and supervisors are available for service anywhere in the United States and many other countries. Estimates submitted on request.

## SPRAGUE & HENWOOD, INC. Scranton 2, Pa.

See our four-page insert in the McGraw-Hill Mining Catalogues



#### "CONCAVE" TYPE NON-CORING BIT

Especially suitable for drilling round smooth holes in relatively soft formations, when cores are not required. All standard sizes available in four different types of matrix.



#### "PILOT" TYPE NON-CORING BIT

Recommended for drilling blast holes in hard formations and also for use when long straight holes must be drilled in variable formations.



#### "TAPER" TYPE NON-CORING BIT

The fastest coring bit for drilling blast holes in very hard formations. All standard sizes.

**Deadweight Down  
Payloads Up  
with**

## **LAKE SHORE MINING EQUIPMENT**

PRODUCTION INCREASES OF 8% and more

have been recorded with the installation of Lake Shore engineered mining machinery, like the aluminum and steel Jeto Bottom Dump Skip (above).

Lake Shore mining equipment is designed and built by men who know the field, men who know where and how to use weight-cutting aluminum, how to round the corners of tram car for greater rigidity and cleaner dumps . . . men who originated the roller bearing bicycle type head sheave and bell mouth idler sheave.

Lake Shore's experienced engineering is at your disposal either in existing models, or for the design of special machinery your operation may require.

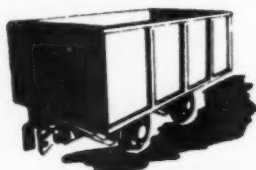
*Write today for free CATALOG 450-A.*



**Skips and Cages—all types.**



**Sheaves—Roller Bearing, Rotating Shaft and Split Type Bicycle Sheaves . . . Cast Iron, Steel and Aluminum Idler Sheaves.**



**Mine Cars—Lohed Tram Cars, Granby Type, Self-propelled Trestle Cars, Man Haul Cars.**

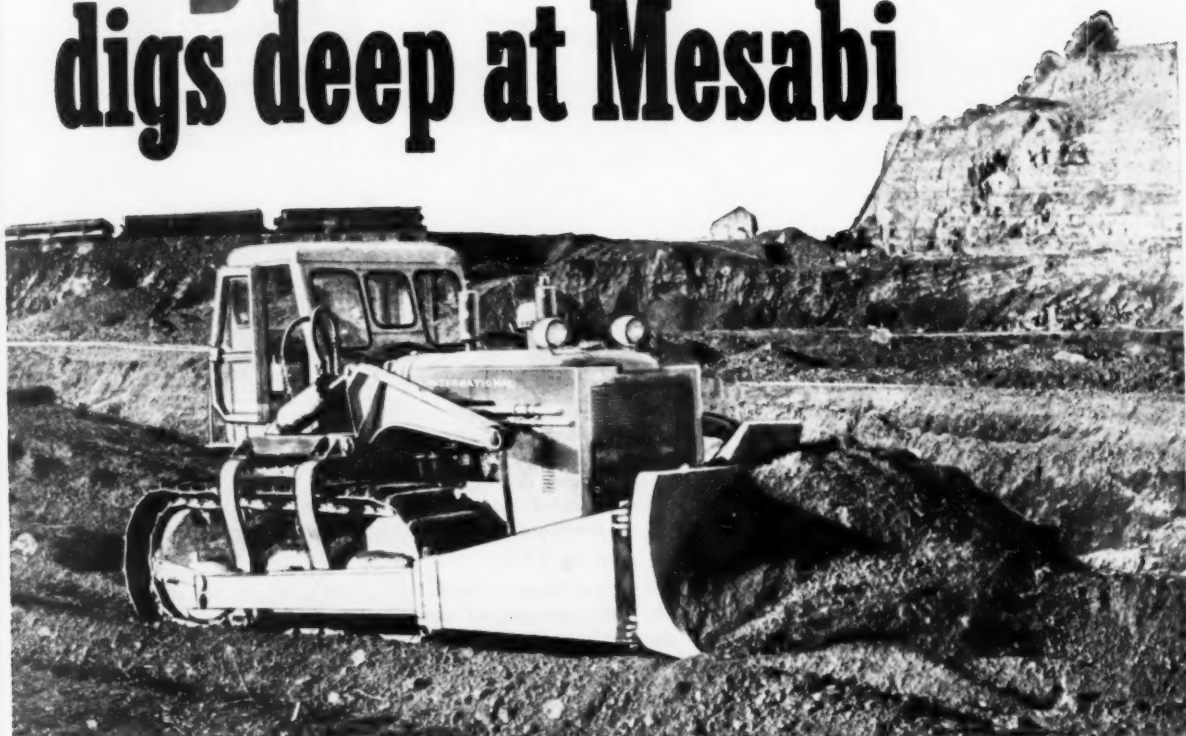
102

**LAKE SHORE**  
*Engineering*

IRON MOUNTAIN

*Look to  
Lake Shore  
for Leadership*  
**Company**  
MICHIGAN

# "Big Red" digs deep at Mesabi



"BIG RED" BLENDS ORE with a bulldozer in one of Mesabi's huge open pit mines. The TD-24's 148 maximum drawbar horsepower makes this hard job easy. So do its pivot-turns, feather-turns, turns with power on both tracks; its 8 speeds forward, and 8 reverse; its instant, all-weather, push-button starting—plenty important when the temperature drops! These advantages make the TD-24 the Champ for sure!

## International TD-24 helps keep production high

One reason the great Mesabi iron range keeps right on supplying the bulk of the nation's ore—in spite of dire warnings by mining alarmists over the past twenty years—is the growing use of bigger, better machines to keep costs down even though today's ores are lower quality and harder to get.

For example, big red International TD-24 crawler tractors—the fastest and most powerful crawlers on the market—master many tough Mesabi jobs:

*They strip off ever-deeper layers of overburden.  
They constantly build new mine roads in Mesabi's great open pits—build them faster*

*and easier than ever before.*

*They relocate railroad roadbeds the same way—again deep in the pits themselves.*

*They bulldoze together high-grade and low-grade ores, make usable blends to ship to the steel mills.*

As a result of such ingenious and increasing use of modern machines, six tons of material is removed per man-hour today, where less than four tons were removed per man-hour in 1931.

For details on the great TD-24, see your International Industrial Distributor. You'll be a TD-24 man yourself from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

# INTERNATIONAL



# POWER THAT PAYS



## Rotary Bit Drills 4500' In Potash Ore



Satisfactory results are reported in the rotary drilling of hard potash ore in southeastern New Mexico, as 4500 feet of drilling is being obtained in

langbenite per average bit life. Jeffrey A-6 Drills equipped with Kennametal Tungsten Carbide Insert Rotary Bits, 1½" in diameter, are used.

## Iron Ore Rotary Drilled



covering low grade ore. The boring is done horizontally. Speed and mobility over the churn drilling method are the advantages reported.

In one operation in Minnesota, an unusual use of Kennametal Tungsten Carbide Rotary Drill Bits is being made to drill in the

## 108' Holes In Gypsum Drilled By Rotary Bit



equipment, supplementing core drilling equipment for long hole drilling. Advantages are: Speed, freedom from water and dust, easy mobility. Kennametal 1½" Tungsten Carbide Bits and scroll-type auger are used.

A large gypsum mine operator in Virginia reports that holes are now being drilled successfully to a depth of 108 feet by the use of rotary auger-type

## Structural Bit Gives Big Ore Samples



where it has been used. A big feature is that it produces large, easy-to-analyze chunks of ore. It is set with 6 Kennametal Tungsten Carbide Inserts.

A six-point "Chopping Bit" used on the Mesa-bi Range to determine quality of formation is reported to cut cost 50% to 70% in two instances

# KENNAMETAL Rock Bits



Style PT Rock Bits are used to drill fissured, ravelly, non-uniform ground. Faster drilling, (by about 10%) in these conditions is assured by the three-point design.

Style PA Rock Bits give superior service and faster, lower cost drilling in hard, uniform ground. Both PA and PT bits have ample clearance for cuttings.

After more years of experience than any other American manufacturer in the development of tungsten carbide rock bits, Kennametal has produced these modern bit designs that assure efficient drilling in all types of ground.

"Three-point" construction is offered in the Kennametal multiple-point bit to give additional drilling speed (10% or more in many cases) where the use of multiple-point bits are necessary. Where conditions permit, such as in solid hard drilling, the chisel-type bit gives high rates of penetration.

Kennametal Bits offer long life because they feature inserts of Kennametal tungsten carbide, the carbide used in more mining bits than any other carbide in the world.

Special construction features are: Good clearance for free removal of cuttings; easy reconditioning.

Detailed information on request by writing: Kennametal Inc., Bedford, Pa.



## KENNAMETAL inserts make the BIG difference

Kennametal inserts make the BIG difference in every drilling job as they feature long wear and high resistance to shock. They are produced according to special Kennametal processes that differ from any others in the world. They are dependably more uniform in quality. Kennametal's Nevada Scheelite Mine produces much of the tungsten used in their manufacture.

# KENNAMETAL®

**BITS FOR ROTARY AND PNEUMATIC DRILLING  
IN METAL AND NON-METALLIC MINERAL MINES**

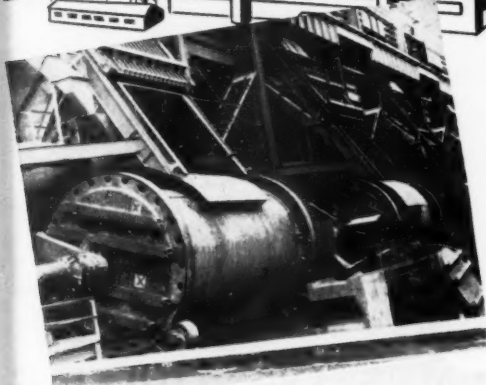
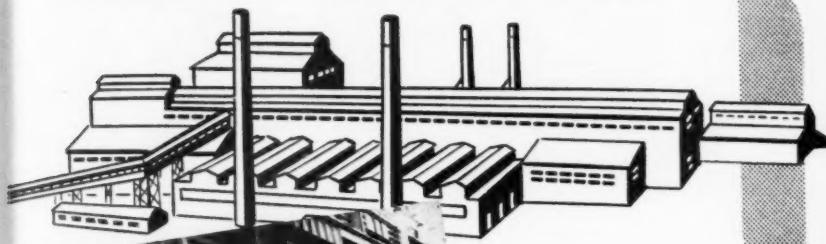
**ROCK BITS • DRAG BITS • CORE BITS • DRILL BITS FOR SPECIAL JOBS**



# Traylor

## MACHINERY

### GOES TO CHUQUICAMATA!



**FOUR 13'-0" x 30'-0"**  
**Pierce-Smith Converters**

**ONE 41'-3" Anode**  
**Casting Wheel**

**ONE 10" x 16" Type H**  
**Jaw Crusher**

**ONE 7'-6" x 315'-0"**  
**Rotary Kiln**

**ONE 60" Gyratory**  
**Crusher**

**SITE** of the world's largest known copper ore body, "Chuqui" is the home of the already famous 111 million dollar sulphide plant newly built by the Chile Exploration Co. Many of the world's best known equipment manufacturers have sent their products to this great new enterprise. Among them is Traylor, known the world over for the dependable operation of its mining machinery.

*For many years, Traylor has supplied the world's leading copper and nickel producers with converters of the Pierce-Smith type in sizes up to 13' x 35'.*

*Photo shows the new plant going up around a 7'-6" x 315' Traylor Rotary Kiln. This Kiln was specially designed for the job.*

### **Plant's 30,000 Ton Daily Capacity** **Requires DEPENDABLE Machinery**

For 50 years, Traylor engineers have worked with the mining industry, studying its needs and developing advanced equipment to meet its demands. That is why, wherever extreme efficiency is required, Traylor machinery is specified. It takes experience to keep machine designs ahead of production demands. Traylor has experience . . . half a century of it.



**ENGINEERING & MANUFACTURING CO.**

563 MILL ST., ALLENTOWN, PA.

SALES OFFICES: New York • Chicago • San Francisco  
Canadian Mfrs. Canadian Vickers, Ltd., Montreal, P. Q.

**Fill in . . . mail coupon**  
for eight page catalog showing  
Traylor's "Equipment for the  
Mining Industry".

Name: \_\_\_\_\_  
Position: \_\_\_\_\_  
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## In Mine after Mine...



### JOHNSTON PUMPS ARE TURNING SELLING CLAIMS INTO PERFORMANCE FACTS

In North and South America . . . In Africa and Asia . . . Everywhere, in fact, Johnston Pumps are **PROVING** themselves to operators who demand **IN-THE-MINE PERFORMANCE** that backs up selling claims based on laboratory tests.

**Johnston Mine Pumps are operating at pressures as great as 600 P.S.I.—handling fluids as hot as 250°F.—pumping corrosive and abrasive water in large and**

**small quantities—and they are doing it week after week, year after year, at higher sustained efficiencies, with lower maintenance costs, no matter what the conditions.**

If you have a mine or mill pumping job on your hands that is proving costly to handle, Johnston can offer you some relief. In any event, it won't cost you a dime to get the suggestions of trained Johnston hydraulic engineers with specialized experience in the mining field.



Send today for your free copy of the new booklet "Fluid Force." Ask for Bulletin E-33.



## JOHNSTON PUMP COMPANY

3272 EAST FOOTHILL BLVD., PASADENA 8, CALIFORNIA

[World Mining Section—18]

MINING WORLD

# MARION

# 151-M

## SEVEN CUBIC YARDS



### This Big, Fast, Hard-Hitting Shovel Is Making History in Metal Mining

The seven-cubic-yard dipper of the MARION 151-M is only one indication of the work it can do.

The small-machine cycle time made possible by the world's finest electrical controls makes the 7-yard dipper of the MARION 151-M more productive than you might expect.

The month-after-month dependability of the 151-M, except for routine maintenance, is another

big factor in year-long production output.

Don't say "seven isn't enough" until you see what others are doing with the biggest seven-yard performer that ever hit the mine pits.

Some of the biggest companies in mining are 151-M owners. More than half of these owners have two or more 151-M machines. Your nearest MARION District office can show you why.

# MARION

**POWER SHOVEL CO.**  
MARION, OHIO, U. S. A.



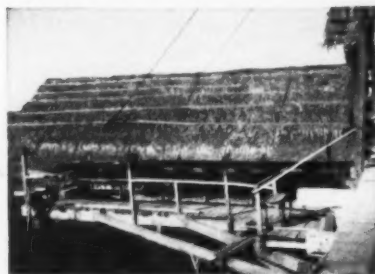
from  $\frac{3}{4}$  cu. yd.  
to 45 cu. yds.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES  
MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

[World Mining Section—19]



Surge pile for ore at the end of one belt conveyor prevents lags in shipment. Plate feeders deliver this ore, 500 TPH, to rail cars.



Reversible belt conveyor at head end of pier for loading barges on either side.



Eastern Mining and Metallurgical Co., Ltd. Bukit Besi, Dungun, Terengganu, Malaysia. One of the S-A Belt conveyors, totaling many thousands of feet, during construction.

# S-A CONVEYING Systems move a

mountain of iron ore at **BUKIT BESI**

Belt Conveyors  
Belt, Pan & Plate Feeders  
Ship Loading Boom Conveyors  
Stacking Conveyors  
Storage & Reclaiming Systems  
"Natural Frequency" Vibrating Conveyors

REDLER Conveyor-Elevators  
ZIPPER Conveyor-Elevators  
Conveyor Belt Cleaners  
Headshaft Holdbacks  
Grizzlies & Screens  
Centrifugal Pilers  
Bin Gates & Tunnel Gates  
Car Pullers & Spotters  
Bucket Elevators  
Skip Hoists  
SEALMASTER Ball Bearing Units

• Write for a bulletin on any of the above

At "Bukit Besi" (Malayan for iron hill) is one of the largest and most modern iron ore operations in the Far East, shipping over 1,000,000 tons annually. Handling this ore and getting it to port 20 miles away is a huge job—made difficult by months of monsoons and a rainfall of 200 inches a year that turns ore into a sticky, viscous mass.

A complete handling set-up, largely engineered and supplied by S-A, keeps the ore moving in an economical and flexible flow that meets all volume and time requirements. Included in this smoothly func-

tioning conveying system are numerous belt conveyors, feeders, car dumpers and other units. Together they provide for conveying and crushing ore, storing and reclaiming, loading and unloading rail cars and selective loading into barges for final shipment...all with minimum expense and labor.

Your bulk handling needs may not be as big and complex as this. But whatever they may be, an S-A engineer—drawing on the complete S-A line that is doing the job so well at Bukit Besi—can find an economical answer. Write when we can help you.

**STEPHEN S-ADAMSON**

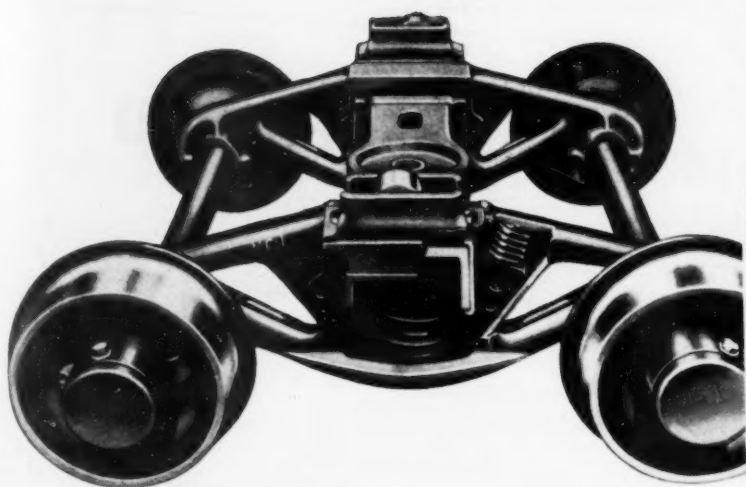
13 Ridgeway Avenue, Aurora, Illinois

MFG. CO.

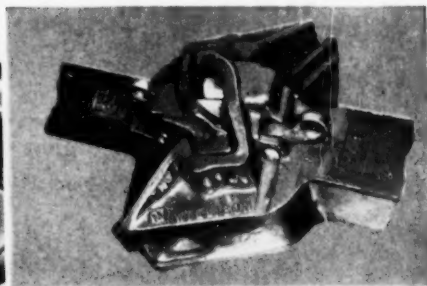
Los Angeles, Calif., Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT





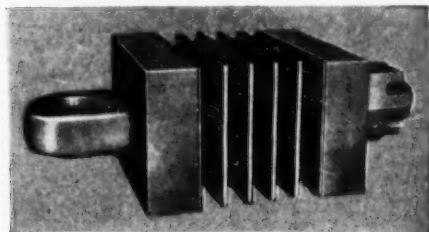
The NC-1 Truck climaxes 20 years of intensive research, providing (through the friction control mechanism shown in cut-away) protection to equipment, roadbed and lading with maximum wear life.



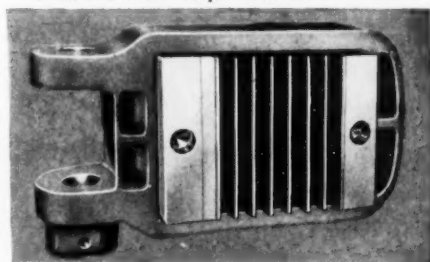
Willison Automatic Couplers save time with maximum safety . . . can be coupled at either end of car or locomotive . . . require no manual assistance. Close coupling eliminates damaging slack, permits high speeds with maximum stability.

## NATIONAL *products cut per ton costs!*

Latest example of National's pioneering in better equipment is the NC-1 Truck. Its sweeping advancements over conventional trucks include long soft springs, a friction mechanism—controlling vertical and transverse oscillations, a cast one-piece bolster with large lubricated center connection, and automatic frame alignment. The NC-1 has been designed with the same factor of safety that is required by the Association of American Railroads for full size railroad trucks, and embodies the same features which A.A.R. tests have shown to be essential to produce good riding qualities. For the best in profitable equipment, *always specify National products.*



National M-230 Rubber-Cushioned Draft Gear for cars operating through rotary dump. Soft initial-action, high-capacity rubber pads provide maximum impact protection, lengthen equipment life. Available in a range of capacities and design variations to fit individual requirements.



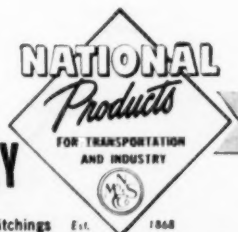
M-225 Rubber-Cushioned Draft Gear for locomotives and large capacity cars not required to operate through rotary dump. Maximum protection in minimum space.

A-3863

### NATIONAL MALLEABLE and STEEL CASTINGS COMPANY

Cleveland 6, Ohio

Willison Automatic Couplers • Friction & Rubber Draft Gears • Car Trucks • NACO Steel Wheels • NACO Steel Links & Swivel Hitchings Est. 1868



How Dorrco Worldwide engineering serves the mining industry throughout the world . . .

## Doubling Gold Mill Output in Brazil

### PROBLEM:

To increase tonnage from 1000 to 2000 tons per day by mill modernization and expansion for Brazil's largest gold producer.

### HOW DORRCO WORLDWIDE ENGINEERING WORKED:

As a first step, Dorr engineers from the Consulting Engineering Department in Stamford were sent to study the existing plant, and methods used in treating the complex arsenical ore. Working closely with the client, exhaustive analyses were made of all aspects of the problem. Based on this complete information, recommendations for changes in the existing flowsheet and for the required new facilities were submitted.

Final plant design and equipment purchase were handled by the client, and at this point the worldwide facilities of the Dorr organization were placed at his disposal. In this case, it was to his advantage to purchase the Dorr equipment involved directly from our Associated Company in England, Dorr-Oliver, Ltd.

This is but one example of how the flexibility of the Dorrco Worldwide engineering organization has worked to the advantage of a client. It can work for you too, through any of the following Associated Companies and Representatives, all with facilities for local manufacture.

**In Europe:** Dorr-Oliver Companies in England, Belgium, The Netherlands, France, Germany and Italy.

**In South Africa:** E. L. Bateman Limited, Johannesburg.

**In India:** Dorr-Oliver (India) Limited, Bombay.

**In Australia:** Hobart Duff Pty. Ltd., Melbourne.

**In Japan:** Sanki Engineering Co., Ltd., Tokyo.

**In South America:** Fiore Company in Buenos Aires; Serva Ribeiro in Rio de Janeiro and Sao Paulo; John Lindsay in Caracas; and conveniently located Dorr Resident Engineers.



Better tools TODAY to meet tomorrow's demand

# DORR

WORLD - WIDE RESEARCH • ENGINEERING • EQUIPMENT

THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.  
Offices, Associated Companies or Representatives in principal cities of the world.

[World Mining Section—22]

MINING WORLD

# ROCK RATED

with  
Built-In features  
to save you money



MODEL 1055 — 3½ yards  
MODEL 955A — 2½ yards

Strength was no afterthought on this husky machine. It started on the drawing boards — with all-welded construction of tough rolled steels — with extra strength where strength is needed — with the ability to absorb continuous shock loads . . . and the stability to let you use full power for bigger production. It is the steady digging, without time-outs for pampering, that saves you money.

Add smooth hydraulic control to cushion operations and reduce operating fatigue, and you have the built-in advantages to make all kinds of rock work more profitable. The Model 1055 (3½ yard) and the Model 955-A (2½ yard) have proved it. Ask to see one on the job.

## **P&H** MAGNETORQUE<sup>\*</sup> ELECTRIC SWING

gives you the slickest, fastest cycle you've ever known on machines of this size . . . from 15% to 25% faster than any others! And there are no delays for adjustments or replacement of swing frictions. Magnetorque eliminates all that — and lasts the life of your machine.

\*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

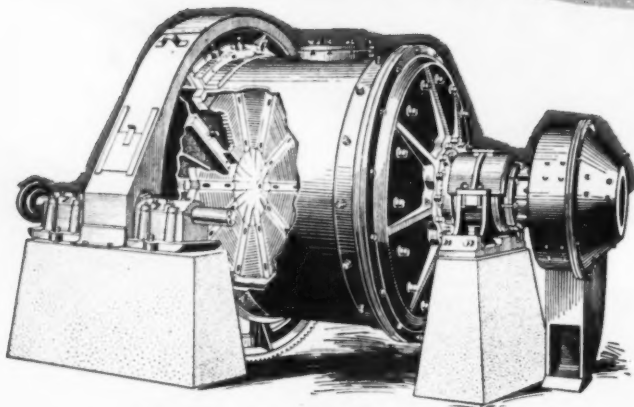
**P&H** LARGE EXCAVATOR DIVISION  
**HARNISCHFEGER**  
CORPORATION  
MILWAUKEE 46, WISCONSIN





# DIRECTORY

of

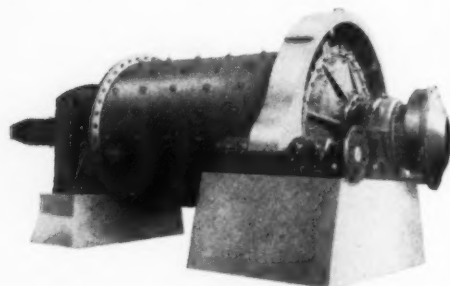
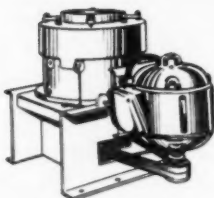


*Marcy Grate Discharge Ball Mill*

For Wet or Dry Grinding of ore, cement, clay or fibrous materials. Types, sizes and capacities for from 5 tons up to 3000 tons per 24 hours. Marcy Grate Discharge Ball Mills and Open End Rod Mills have unique features resulting in quick discharge, maximum useful grinding, minimum overgrinding and better metallurgy. Used throughout the world

## Massco Gy-roll Reduction Laboratory Crusher

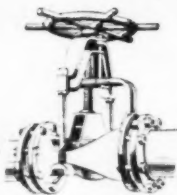
Reduces  $\frac{1}{2}$ " feed to as fine as 10 mesh in single pass. High capacity with low power consumption. 6" and 10" sizes.



*Marcy Open End Rod Mill*

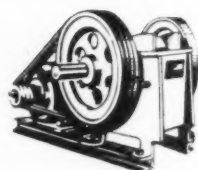
## Massco-Grigsby Rubber Pinch Valves

Designed for abrasive and corrosive pulps. Patented hinged sleeve for longer wear. 1" to 12" diameter. Up to 150 pounds continuous pressure.



## Massco Laboratory Jaw Crusher

Welded steel frame; manganese steel jaw and check plates; bronze bushed bearings; smooth jaws give better product and easier cleaning. Adjust for plate wear by convenient hand wheel adjustment.



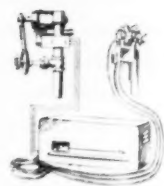
## Massco-Adams Reagent Feeders

For wet reagents and other liquids. No mechanically driven moving parts. Only one micrometer screw adjustment. Siphon principle. Requires no electrical connections.



## Massco-Adams Density Controller

Automatically regulates water dilution of pulp in grinding circuit to maintain constant percent solids—thus, controls size of finished product.

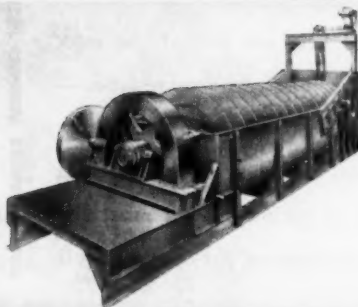




# cost-cutting equipment

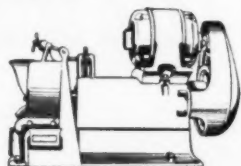
## Akins Classifiers and HMS Separators

Akins Classifiers are made in sizes from 12" to 84" dia., simplex and duplex. They are used for classification of solids by size, dewatering, washing coal, preparation of china clay and glass sand, desliming and de-oiling phosphate rock, sink-float concentration. Used throughout the world by hundreds of the best companies in the mining and process industries.



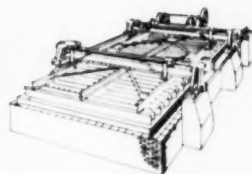
## Massco-McCool Pulverizers

Disc type grinder with planetary movement. No gears. Will grind to 150 mesh in one pass.



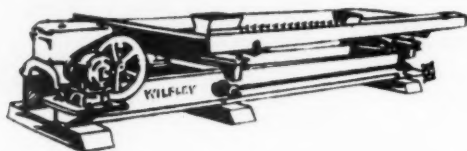
## Lowden Dryer

For drying flotation concentrates, graphite, clays, ground minerals, paint fillers, pigments, various precipitates. Can use most any fuel including live steam and waste heat.



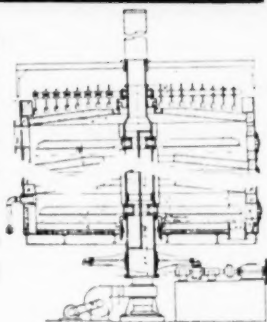
## Wilfley Tables

For separation of any ore or material amenable to gravity concentration. Laboratory and commercial sizes—up to 180 tons capacity per 24 hours.



## Skinner Roasters

For roasting and calcining ores, clays, limestone, limestone mud; decomposing oil sludge in process of producing sulphuric acid; incinerating sewage and garbage. Coal, oil or gas fired. Sizes to 22' inside diameter; up to 12 hearths.



## FOREIGN REPRESENTATIVES MINE & SMELTER COLORADO IRON WORKS

### Representatives:

Canadian Vickers, Ltd., Montreal, Canada  
W. R. Judson, Santiago, Chile  
The Edward J. Nell Co., Manila, P. I.  
The Austral Otis Eng. Co., Ltd., So. Melbourne, Austr.  
Morgardshammars Mek. Verkstads Aktiebolag,  
Morgardshammar, Sweden  
The Ore & Chemical Corporation, 80 Broad Street,  
New York City 4, New York  
Representatives for Continental Europe

### Licensed Manufacturers:

Canadian Locomotive Co., Ltd., Kingston, Ont., Canada  
John Carruthers & Co. (Pty.), Ltd., Sydney, Australia  
Head, Wrightson & Co., Ltd., Stockton-on-Tees, England  
Head, Wrightson & Co., S. A. (Pty.), Ltd., Johannesburg

### Sales Agents:

Andrews and George Co., Inc., 5 Shiba Park, Tokyo, Japan  
Edw. J. Nell Co., Manila, P. I.  
Wright Bros., Credit Foncier Bldg., Vancouver, B. C., Canada

**The  
Mine & Smelter  
Supply Co.**

Denver 17, Colorado

AND ITS SUBSIDIARY COMPANY

**COLORADO IRON WORKS CO.**

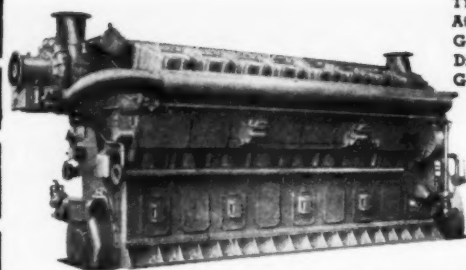
Denver 2, Colorado

OFFICES IN SALT LAKE CITY, EL PASO, 1775 BROADWAY, N. Y. C.

MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

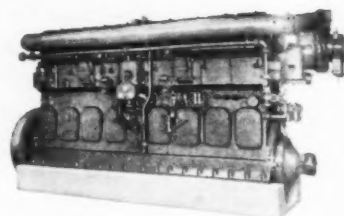
[World Mining Section—25]

● Identified here are five of the most popular Cooper-Bessemer engine types — in a power range from 300 to 5000 bhp. Not only does each type offer variety in the number of cylinders, but most are available as gas engines, gas-diesels or full



TYPE LSV ..... 12 or 16 cyl.  
Atmospheric and Supercharged  
Gas ..... 1440 to 5000 hp.  
Diesel ..... 1650 to 5000 hp.  
Gas-Diesel ..... 1650 to 5000 hp.

TYPE LS ..... 6, 7 or 8 cyl.  
Atmospheric and Supercharged  
Gas ..... 720 to 2500 hp.  
Diesel ..... 825 to 2500 hp.  
Gas-Diesel ..... 825 to 2500 hp.

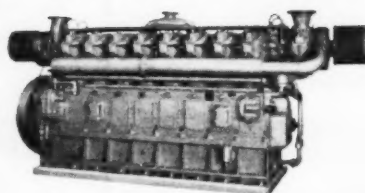


## WHEN IT COMES TO POWER... *the better it "fits", the less it costs!*

diesels. Moreover each type comes either atmospheric or supercharged.

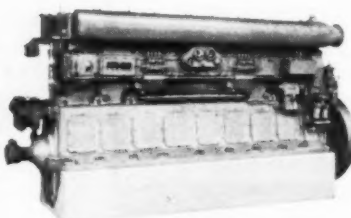
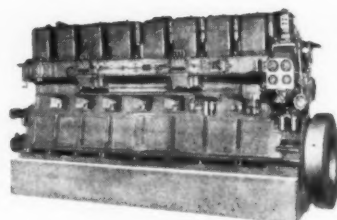
This gives you some idea of how well Cooper-Bessemer is prepared to meet your mobile or stationary power requirements — and with engine qualities that mean a whale of a difference in trouble-free, low-cost service!

And remember, Cooper-Bessemer's modern motor and engine-driven air compressors are setting equally enviable records of superior performance. Specify your service needs and ask for descriptive bulletins on Cooper-Bessemer engines, air compressors or both.



TYPE FV ..... 8, 12 or 16 cyl.  
Diesel —  
Atmospheric ..... 430 to 1150 hp.  
Supercharged ..... 1110 to 2230 hp.

TYPE JS ..... 5, 6, 7 or 8 cyl.  
Atmospheric and Supercharged  
Gas ..... 375 to 1815 hp.  
Diesel ..... 430 to 1815 hp.  
Gas-Diesel ..... 430 to 1815 hp.



TYPE GS ..... 5, 6 or 8 cyl.  
Atmospheric and Supercharged  
Gas ..... 320 to 1460 hp.  
Diesel ..... 300 to 1460 hp.  
Gas-Diesel ..... 300 to 1460 hp.

*The*  
**Cooper-Bessemer**  
*Corporation*

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New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas  
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Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. Calmes Engineering Co., New Orleans, La.

# Setting the Pace For TACONITE PROCESSING

**World's Largest  
CRUSHER**

**T**HIS GIANT 60 x 109 gyratory crusher now being built in Allis-Chalmers shops will be capable of crushing 3500 tons of low grade iron ore an hour!

It is one of many contributions made since Allis-Chalmers first started the development of equipment for processing taconite ore . . . in the laboratory . . . in the pilot plant . . . and in actual operations on the iron range.

Other metallic ore producers, too, have looked to Allis-Chalmers, *world's most experienced manufacturer of processing equipment*, for crushers, grinding mills, screens and smelting machinery. Allis-Chalmers leadership assures you of equipment recommendations backed by *unsurpassed* experience in all phases of processing.

You'll find the A-C representative in your area a helpful consultant on your processing problems. Call him, or write Allis-Chalmers, Milwaukee 1, Wisconsin, for more facts.

A-3998

## ALLIS-CHALMERS



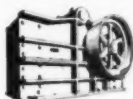
Sales Offices in  
Principal Cities in  
the U. S. A. Distributors  
Throughout the World.



Hammermills



Vibrating Screens



Jaw Crushers



Gyratory Crushers



Grinding Mills



Kilns, Coolers, Dryers

MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

[Mining World Section—27]

27

## CYANAMID REAGENTS

### AERO\* Brand Cyanide

Standard in all mining districts for cyaniding gold and silver ores. Selective depressant for iron sulfides, zinc sulfides, and certain other sulfides in flotation.

### Sodium Cyanide

For cyaniding gold and silver ores. Selective depressant for various sulfides in flotation.

### AEROFLOAT\* 15 and 25 Promoters

General purpose, selective flotation reagents in liquid form combining both promoting and frothing properties and having widespread use for both base and precious metal ores in selective flotation. Also used for bulk flotation in conjunction with other promoting reagents. AEROFLOAT 25 Promoter has stronger promoting action than AEROFLOAT 15 Promoter.

### AEROFLOAT 31 and 33 Promoters

Liquid reagents similar in physical characteristics to AEROFLOAT 25 Promoter but stronger promoters due to added fortifying agents. AEROFLOAT 31 Promoter is recommended for the flotation of galena, silver sulfides and metallic gold and as an auxiliary frother in non-metallic flotation. AEROFLOAT 33 Promoter is effective for the flotation of copper, lead and silver sulfides.

### SODIUM AEROFLOAT\* Promoter

#### AEROFLOAT 211 Promoter

Dry, water soluble reagents containing the active promoting constituent of the liquid AEROFLOAT Promoters. Strong zinc sulfide promoters also extensively used in flotation of gold, silver, and copper sulfide minerals in the presence of pyrite, which they do not actively promote.

Non-frothing promoters, they are generally used with standard frothers such as pine oil or cresylic acid, or in conjunction with the liquid AEROFLOAT Promoters which possess frothing and promoting properties.

#### AEROFLOAT 203 Promoter

A stronger promoter than Sodium AEROFLOAT which it resembles. Especially adapted to flotation of zinc ores.

### AEROFLOAT 208 and 238 Promoters

Dry, non-frothing promoters used with standard frothers. Both are excellent promoters of copper sulfides and for free gold, silver sulfides and zinc sulfides. AEROFLOAT 208 Promoter is the strongest reagent developed for metallics and is widely used in the flotation of fine, free gold, native silver and copper. Preferred for floating chalcocite, bornite, covellite and secondary copper minerals. AEROFLOAT 238 Promoter is widely used in the flotation of copper sulfides and complex oxidized ores and is preferred for the flotation of chalcopyrite.

### AEROFLOAT 213 and 226 Promoters

Dry, water soluble promoters. Somewhat more powerful than SODIUM AEROFLOAT on copper and zinc ores, and tend to produce more froth than the other dry AEROFLOAT Promoters.

### AEROFLOAT 241 and 242 Promoters

Neutralized, water soluble forms of AEROFLOAT 25 and 31 Promoters respectively. Especially suitable where a fast, active promoter is essential and little or no conditioning is possible. AEROFLOAT 242 Promoter is the stronger promoter and is widely used in conjunction with AERO Promoter 404 for the flotation of gold ores.

### AEROFLOAT 243 Promoter

Similar to AEROFLOAT 203 Promoter but is slightly stronger promoter for gold, silver, copper and zinc ores.

### AEROFLOAT 249 Promoter

A dry, water-soluble promoter. On certain types of ores, such as zinc ores and oxidized copper ores, it is a stronger promoter than the other dry AEROFLOAT Promoters.

### AERO\*\* Xanthate 301

Powerful, water-soluble, non-frothing promoter for sulfide minerals, effective for use in bulk flotation of all types of sulfide ores and for oxidized base metal ores after sulfidizing. Widely used in the flotation of pyritic gold ores, in combination with AEROFLOAT 208 Promoter and liquid AEROFLOAT Promoters.

## AND PROCESSES

Cyanamid offers the two most advanced and efficient mechanical processes for minerals beneficiation and coal cleaning. Both processes employ unique, exclusive principles to achieve accurate separation at low cost.

**Heavy-Media Separation Processes** in which the force of gravity alone is used to make a sharp separation of the heavy and light constituents of the feed in a recoverable medium

having a controlled specific gravity between that of the heavy and light fractions.

**Dutch State Mines Cyclone Separator Processes** in which centrifugal-centripetal forces make sharp separations between the heavy and light constituents in an exogenous or autogenous medium of pre-determined specific gravity.



#### **AERO Xanthate 325 and 343**

Water-soluble, non-frothing promoters for sulfide minerals. Commonly used where a non-selective promoter of less strength than AERO Xanthate 301 is applicable.

#### **AERO Promoter 404**

Powerful, water-soluble promoter with some frothing properties, adapted to the flotation of fine free gold and auriferous pyrite in combination with AEROFLOAT 242 Promoter and AEROFROTH Frothers. Especially useful for flotation of highly oxidized lead and copper ores. Using up to two pounds per ton on some ores yields high recoveries and concentrate grade without frothers or sulfidizing agents.

#### **AERO Promoter 425**

Powerful, water-soluble promoter used with minor amount of AERO Xanthate 301 and frother to float mixed sulfide and oxide lead minerals. Also useful for recovery of oxide copper minerals and tarnished pyrite.

#### **AERO Promoter 444**

Dry, water-soluble promoter especially useful for flotation of slow-floating lead, copper and zinc sulfides.

#### **AERO Depressants 610, 615, 620, 633, 645, 651 and 653**

Are powerful depressants for talc, sericite and other gangue slimes. Excellent for depressing carbonaceous minerals. Depressants for pyrite in flotation of cyanide-sensitive copper minerals. AERO Depressants 610, 651 and 653 are dispersants as well as depressants.

#### **AERO Promoter 708**

Fatty acid reagent widely used for flotation of non-metallic ores, this reagent has been proved capable of replacing more expensive reagents in many applications.

#### **AERO Promoter 712**

Soap-type frother with certain promoter characteristics. Valuable secondary promoter for some non-metallic types of ores, and locked sulfide middlings.

#### **AERO Promoters 721, 723 and 730**

New types of distilled fatty acids of vegetable origin having varying rosin contents.

#### **AERO Promoters 801 and 825**

New promoters and processes for non-metallic and metallic oxide flotation. Developed principally for beneficiating iron ores and washery wastes, they are also useful for reducing iron impurities associated with glass sands and ceramic raw materials and for the flotation of garnet. AERO Promoter 825 is also used commercially in the flotation of rhodochrosite and barite.

#### **AERO Thiocarbamilide 130**

An improved, powdery, easily wettable and dispersible form of thiocarbamilide, useful in the flotation of complex copper-lead sulfide ores.

#### **AEROFLOC<sup>†</sup> Flocculants**

A new class of reagents that has a wide application for the thickening and filtration of ore and other pulps.

#### **AEROFROTH<sup>†</sup> Frothers**

A wide variety of frothers is available, including the AEROFROTH Frothers, Pine Oil and Cresylic Acid.

#### **Xanthates**

A complete range of sodium and potassium xanthates are available—(See also AERO Xanthates 301, 325 and 343).

#### **Zinc Dust**

"Asarco" Brand—Both "High Efficiency" and "G" grades. Standard zinc dusts for cyanidation.

#### **Other Chemicals**

Most other chemicals used in cyanidation and flotation are available promptly.

**RECOMMENDATIONS** regarding the special application of "600 Series" reagents to slime problems, the "400 Series" reagents to oxidized copper and lead flotation; the "800 Series" to the flotation of iron ores or iron bearing impurities and certain non-metallic minerals; and on the general application of flotation reagents to particular problems will be gladly supplied.

<sup>®</sup>Reg. U. S. Pat. Off.

<sup>®</sup>AERO is a trade-mark of American Cyanamid Co., applied to Xanthates, promoters, depressants, reagents, etc., for use in the flotation of minerals.

<sup>†</sup>Trade-mark.



## **AMERICAN Cyanamid COMPANY**

### **MINERAL DRESSING DIVISION**

30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK

Cable Address—Limenitro, New York

Inquiries may also be addressed to

AMERICAN CYANAMID COMPANY,  
Azusa, Calif. or El Paso, Texas

NORTH AMERICAN CYANAMID LIMITED,  
Royal Bank Bldg., Toronto 1, Ontario, Canada

CYANAMID DE MEXICO, S. A.,  
Post Office Box No. 26012, Mexico D. F., Mexico

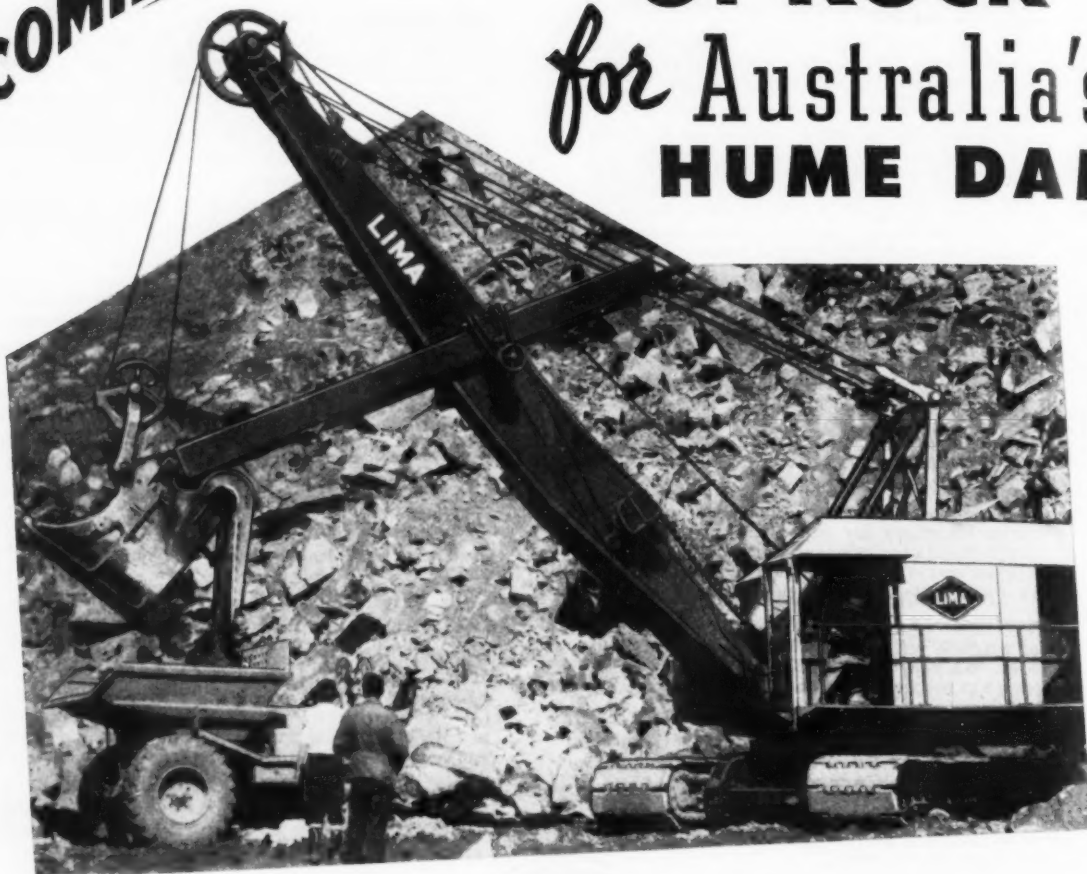
CYANAMID PRODUCTS, LTD., Bush House,  
Aldwych, London W. C. 2, England

SOUTH AFRICAN CYANAMID (PTY.) LTD.,  
Post Office Box 7552, Johannesburg, Union of South Africa

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# COMING UP... 200,000 TONS of Rock for Australia's **HUME DAM**



This sturdy Lima Type 1201 shovel with  $3\frac{1}{2}$ -cu. yd. capacity is playing a major role in enlarging Australia's Hume Dam. It is excavating, singlehanded, from a blue granite quarry, all of the rock needed to help raise the water level of the reservoir 20 feet and to increase its storage capacity 750,000 acre-feet.

The right shovel for this rugged job certainly is being used by the Public Works Dept. of New South Wales. The Lima Type 1201 has the extra power and durability that are so necessary for rugged digging in quar-

ries or ore mining. We invite you to investigate this machine and find out how much it can increase your output and lower your costs. You'll like its friction-free operation through the liberal use of anti-friction bearings . . . and its air controls that make operating it such a pleasure.

There's a Lima for every job . . . shovels from  $\frac{3}{4}$  to 6 cu. yds., cranes up to 110 tons, and draglines variable. Write us for our recommendation of the right machine to fit your needs.

Cable Address: LIMASHOVEL

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SHOVELS • CRANES  
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**BALDWIN-LIMA-HAMILTON CORPORATION**  
Construction Equipment Division  
LIMA, OHIO, U.S.A.

Construction Equipment Division

# These Two M.S.A. Mine Communication Systems help you **"TALK YOUR WAY" TO GREATER TONNAGE—SAFELY**

## THE M.S.A. MINEPHONE COMMUNICATION SYSTEM ... answers mechanization's call for faster, safer HAULAGE OPERATIONS

Sending dispatcher's orders instantly and simultaneously to all motormen, who can reply or communicate with each other *while trips are in motion*, this modern underground communication system coordinates haulage movements with production demands ... maintains smooth, continuous trip movements throughout the mine.

Messages, transmitted on an "open line" hook-up, keep the track clear for outgoing loaded trips and incoming empties. Keeping every trip on the move means less wear and tear on equipment; time is saved; injury is avoided.

Write today for complete details on this vital production aid.



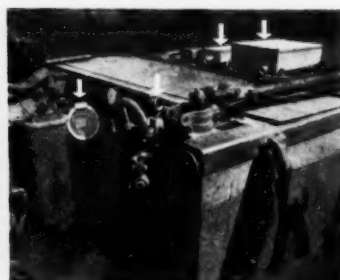
Motorman reports his position at cross-over.



Motorman, ready to go into mine, asks for right of way.



Trip unloader advises conditions at his station.

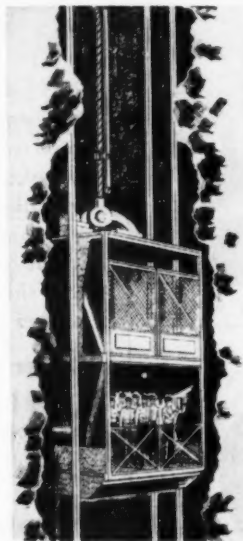


Typical compact MinePhone installation on top of locomotive.

## THE M.S.A. HOISTPHONE COMMUNICATION SYSTEM ... gives hoisting operations a lift ... for greater production — safety

Here's the voice communication system that assures accurate, instant response between the hoisting engineer and cage. Whatever the job—load leveling—shaft repairs—shaft inspection trips—passenger transportation—the M.S.A. HoistPhone provides dependable, continuous voice communication at any level, and when cage is in motion.

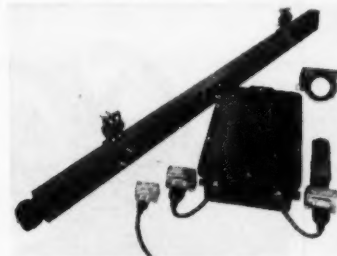
The HoistPhone can be heard above noises of running equipment—is free of transmission noise and outside interference. Existing wiring, hoist cable and shaft frame can be utilized to carry the signal. It is simple to use—dependable in operation. Write for details on construction, flexibility, and design details.



HoistPhone permits positive control of the cage at any point in the shaft whether engaged in handling personnel, materials, repair or maintenance crews.



Hoist deck showing level indicator and M.S.A. HoistPhone. Voice control eliminates misunderstandings often caused by bell or horn signals.



Complete cage assembly showing transmitting and sending loop, transmitter-receiver, power supply box, microphone with control switch and speaker.

**MCA**  
 SAFETY EQUIPMENT HEADQUARTERS  
**MCA**

When you have a safety problem, M.S.A. is at your service.  
 Our job is to help you.

### MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets, Pittsburgh 8, Pa.  
 At Your Service 69 Branch Offices in the United States and Mexico

### MINE SAFETY APPLIANCES CO. OF CANADA, LIMITED

Toronto, Montreal, Calgary, Winnipeg, Vancouver, New Glasgow, N.S.

Cable Address "MINSAP" Pittsburgh

# DFC ASSAY EQUIPMENT

## For fast-uniform assays

Since 1876, mining operations all over the world have found it highly convenient to rely on the complete assay lab service offered by THE DENVER FIRE CLAY COMPANY.

We can supply equipment for your entire lab—everything, from lab furniture to a test tube—with assay Furnaces, Crushers, Pulverizers, Metallurgical Clay Goods, samplers and sieves in between.

### DFC ASSAY FURNACES

DFC "performance-proved" assay furnaces are available in gas-fired, oil-fired and electric models. A variety of sizes and available combinations make it possible for us to give you furnace facilities which will best handle the volume of work in your particular operation.

### METALLURGICAL CLAY GOODS

The popular line of DFC metallurgical clay goods includes crucibles, muffles, annealing cups, roasting dishes, scorifiers, trays, ignition cups and cupels... every piece is designed and made to meet the specific conditions to which it will be exposed. For dependable results, every time, insist on DFC metallurgical clay goods.

### DFC LABORATORY CRUSHERS

DFC crushers enjoy a fine world-wide reputation—for a good reason. They are built for fast reduction of ore samples to uniform size. They are built to give years of trouble-free, efficient performance. Two sizes with flat or V-belt motor drive are available. Pitman-toggle movement, reversible jaws, removable jaw plates, and replaceable shims are just a few features which make the DFC crusher outstanding.

### Other DFC Manufactured Assay Equipment

Other DFC assay equipment stamped with the DFC trademark of quality:

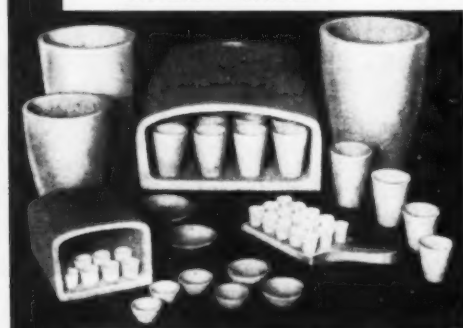
- DFC Cupel Machines
- DFC Samplers
- DFC Sieves

These too are designed for long-life, and top performance.

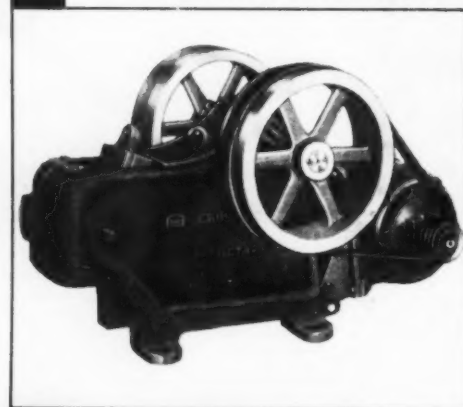
### WHERE AN ACCURATE ASSAY BEGINS



DFC ASSAY FURNACE



DFC METALLURGICAL CLAY GOODS



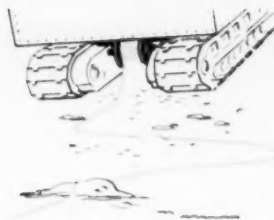
DFC LABORATORY CRUSHER

**Write for information**



proved in **our** mines

for better performance in **yours**



*We—at Anaconda—are miners ourselves. We know shovel cable because we use lots of it. Safety and uninterrupted flow of power are important in any mining operation. In both respects we know Securityflex® Type SH-D has a good record.*



for longer "failure-free" service on big shovels, insist on

**Butyl-Insulated Securityflex** above 2kv



This is Butyl-Insulated Securityflex Type SH-D. For your drills use patented rubber-cored Type G Securityflex Portable Cable.

ANACONDA Securityflex Cable is safer, less liable to "blow-out," easier to work with. Here's why:

**BUTYL INSULATION.** This accounts for improved resistance to moisture, ozone, heat (up to 80C).

**NEOPRENE JACKET.** Here is real flexibility and great strength engineered for this specific tough use. Handles well, has high impact resistance and lasts longer in all weather.

**RUBBER-CORED GROUND WIRES.** This safety-first feature prevents kinking, gives greater shield contact, and cushions the wires.

**COPPER-COTTON SHIELD.** Special new-type shield makes splicing easier, faster without damage to insulation. Eliminates chafing failures.

Ask your Anaconda Sales Office or Distributor to show you this and other ANACONDA portable mining cables. Learn how continuous improvements have made these famous cables better . . . for safety . . . and for increased production at less cost in your mine. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

\*Trademark

62900

**the right cable for the job**

**ANACONDA®**

**wire and cable**

MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

33



As with every other product, there can be weakling cables and robust cables. Weakling cables are those that can be classified as having anemia of the insulation. In other words, they do not have the insulation stamina to stand up under the electrical and physical conditions to which they will be subjected. It's this kind of cable that will haunt you.

Simplex-ANHYDREX XX Cables come from a robust family. They have a guaranteed water absorption of only 15 milligrams of water when tested in accordance with U.S.C.G. specifications. They will not crack when exposed to severe ozone conditions. Simplex Anhydrex XX insulation is so robust that it will withstand these tests before or AFTER the insulation has been aged for 7 days at 250°F. (121°C.). Simplex-ANHYDREX XX Cables are recommended for operation at copper temperatures up to 176°F. (80°C.) in either wet or dry locations.

Here is an insulation that doesn't ask for special favors. It's the kind of insulation you should have on your important feeder, network, and station cables that operate in the voltage range of 2,000 to 17,000 volts. These cables won't haunt you.

Want to know more about this robust insulation? Simply send your request to the address below.

**SIMPLEX-ANHYDREX XX**

**SIMPLEX WIRE & CABLE CO.**  
79 Sidney St., Cambridge 39, Mass.

**need wire rope and  
rigging materials?**



## **LET REPUBLIC SUPPLY YOUR INDUSTRIAL NEEDS!**

*He said:* "Hey — the boss is up in the air — we've lost some rigging . . . and I need some more wire rope, a coupla hooks, and half-a-dozen thimbles, *fast!* Have you . . ."

*We said:* "We've got 'em in stock — what sizes do you need and where do you want 'em?"

*He said:* "I'll pick 'em up!"

*The moral:* When you let Republic Supply your industrial needs in the construction field, in log-

ging, in petroleum — in all industries and for all jobs requiring thimbles, sockets, hooks, slings, wire rope, blocks, shackles, turnbuckles and all types of rigging materials and equipment — you deal with an organization rigged for quick, dependable service. "Will Calls" can be ready in *ten minutes!*

**THE REPUBLIC SUPPLY COMPANY**

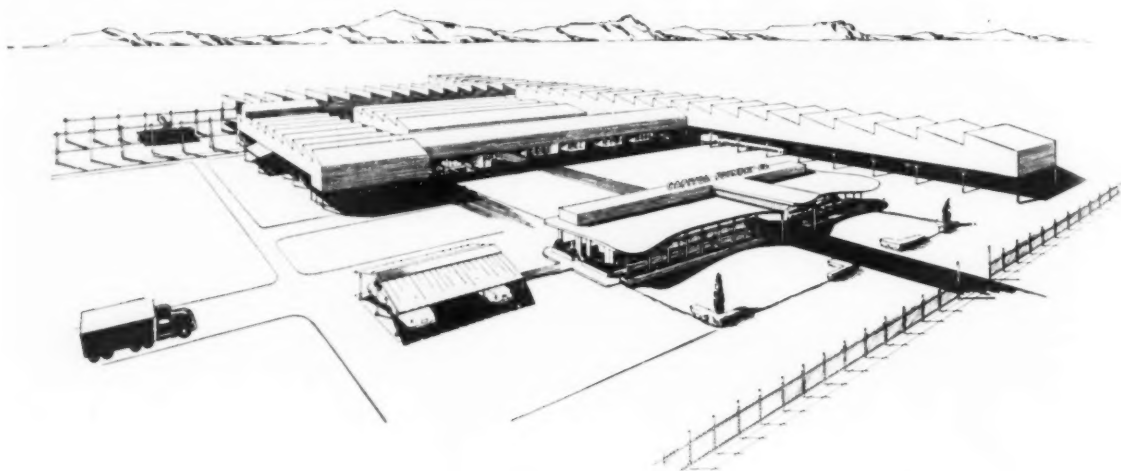
Los Angeles Office — phone: UNderhill 0-2511; San Leandro — phone: LOckhaven 2-0414; Phoenix — phone: ALpine 4-3434  
Pipe, valves and fittings • abrasives • shop supplies and tools • rigging materials • mechanical rubber goods • machinery • oil field supplies

*An independently owned and operated company serving Western industry*

**MINE DEVELOPMENT & DIRECTORY NUMBER, 1953**

## NEW FOUNDRIES

*to serve the West...*



*To* BETTER SERVE the expanding mining facilities of the West, the Capitol Foundry Company, subsidiary of National Malleable and Steel Castings Company, will start operating its new plant near Phoenix this year.

First unit of the new plant, which will expand Capitol's production of cast-steel grinding balls, is scheduled to start production in July, 1953.

A second unit will begin operation in the fall of 1954. It will produce Ni-Hard iron, manganese steel, chrome-moly steel, white iron ball mill liners and grates; also general castings of manganese, chrome-moly and carbon steel; gray, white and alloy iron; and bronze.

Both foundries, incorporating all modern mechanical methods, will have capacities capable of producing many products in addition to their present items.

A-5846

---

### BETTER SERVICE TO THE WEST'S EXPANDING MINING INDUSTRY!

*for your immediate needs, contact:*

**CAPITOL FOUNDRY COMPANY,**

502 South 15th Avenue, Phoenix, Arizona

**ARIZONA IRON WORKS,**

301 South 19th Avenue, Phoenix, Arizona

subsidiaries of

**NATIONAL MALLEABLE and STEEL CASTINGS COMPANY**  
Cleveland 6, Ohio







# chemistry

*geared to*  
**INDUSTRY**

## TRONA-ESTON CHEMICALS INCLUDE:

### TRONA<sup>†</sup> BRAND

Lithium Chemicals  
Muriate of Potash (agricultural & chemical grades)  
Potassium Pentaborate  
Salt Cake  
Soda Ash  
Sodium Pentaborate  
Sulphate of Potash (agricultural grade)

### THREE ELEPHANT BRAND\*

Borax, Technical (coarse and fine granular-powdered)  
Boric Acid  
(Technical and U.S.P.)  
PYROBOR\* Dehydrated Borax, Technical (coarse & fine granular)  
TRONABOR\* Pentahydrate Borax (agricultural & refined grades)

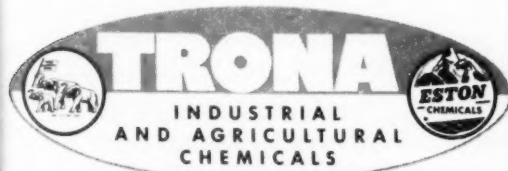
### ESTON BRAND

ALKRON\* (parathion formulations)  
BROMOFUME\* (soil fumigants)  
ESTOMITE\* (residual type miticide)  
ESTONATE\* (DDT dust concentrates and emulsifiable solutions)

ESTONOX\* (toxaphene formulations)  
Organic bromides  
TETRON\* (Tetraethyl pyrophosphate formulations)  
TUMBLEAF†  
TUMBLE-WEED†

\*Trade Mark Registered

†Trade Mark American Potash & Chemical Corp.



## MAKES THE WORLD GO 'ROUND

On our constantly revolving earth the wheels of progress grind ahead to new and wonderful developments for better living. Few men realize or stop to enumerate the countless invisible uses in industry for Trona Chemicals. Homes, clothing, food, automobiles, yes, even television sets are better because of minerals drawn from a dry lake created during the glacial age, in what is now California. Regardless of where they may live or what they may do, Trona Chemicals play a part in the life of every individual in these United States.

PROVED CHEMICALS FOR INDUSTRY AND AGRICULTURE

# American Potash & Chemical Corporation

Offices • 3030 West Sixth Street, Los Angeles 54, California  
122 East 42nd Street, New York 17, N. Y.

• **ESTON CHEMICALS DIVISION**  
3100 East 26th Street, Los Angeles 23, California

Plants • Trona and Los Angeles, California

MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

# BUDA DIESELS

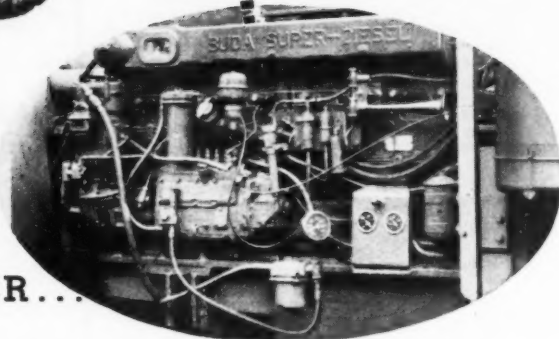
## POWER WORLD'S LARGEST TRUCK\*



Model 600 Dart —  
60 Ton Capacity.  
Powered by two Buda  
8 DAS-1125 Super  
Diesels

\*Based on total tire capacity less net weight

BAGDAD COPPER  
*Again* PICKS BUDA  
DIESELS FOR *BIG* POWER...  
STAMINA...LONG LIFE!



One of two Buda Super Diesels  
powering new Dart 600.

Buda Diesels' superiority was demonstrated again when Bagdad Copper Mines picked two 8 DAS-1125 Super Diesels to power their new Dart 600 truck — called the largest truck in the world.

Deep, open pit mines are tough proving grounds for engines. The Buda Diesels powering other Bagdad haulage units are delivering such stand-

out performance that Buda was the natural power choice for this giant new truck.

Your nearby Buda Distributor can show you how Buda Diesels will increase your equipment performance and profits. Ask him today. Write for Bulletins and data. The Buda Company, Harvey, Illinois.

# BUDA

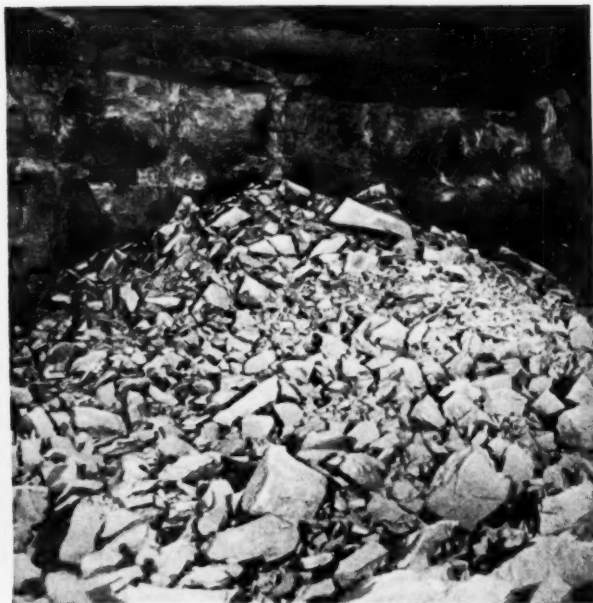
a Power-Full  
and Dependable Name  
in Engines

# UNIFORM FRAGMENTATION

with Du Pont "Extra" Dynamite and "MS" Delay Caps  
in southern limestone mine



Face drilled and ready for loading  
in Franklin Limestone Mine.



Results with "MS" Caps consistently  
produce more uniform fragmentation.

● Rooms average about 26 feet high . . . 48 feet wide in the southern limestone mine property of the Franklin Limestone Company, Franklin, Tennessee.

Typical shots consist of some 48 holes arranged in vertical rows of six each. These are loaded with Du Pont "Extra" D-1 Dynamite (40%) and are primed with Du Pont "MS"\* Delay Electric Blasting Caps of 25, 50, 75, 100, and 125 millisecond delay periods.

"MS" Caps enable the mine operators to use less dynamite per blast and to obtain a much better and more uniform quality of fragmented rock. In addition, these caps greatly reduce concussion throughout the mine.

Whatever type of blasting you may be supervising . . . you can always depend on Du Pont Explosives to deliver the best results possible. Ask the Du Pont Explosives representative in your own district for complete information and for technical assistance whenever you may have

a special problem. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

\*"MS" Delay Electric Blasting Caps are available in 14 millisecond delay intervals: MS-25, -50, -75, -100, -125, -150, -175, -200, -250, -300, -350, -400, -450, -500



## DU PONT EXPLOSIVES

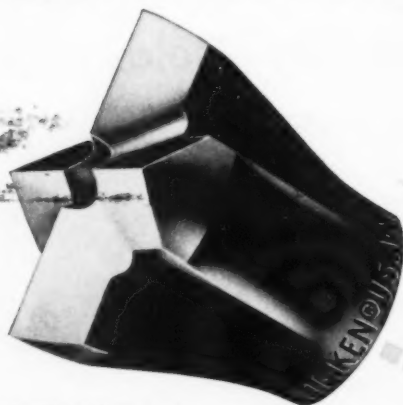
*Blasting Supplies and Accessories*



REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

# BOTH FIT THE SAME DRILL STEEL!



**TIMKEN MULTI-USE  
ROCK BIT**



**TIMKEN CARBIDE  
INSERT ROCK BIT**



*Change TIMKEN® rock bit types as the ground changes!*

You can make one drill steel do the work of many when you use Timken® rock bits. Timken multi-use and carbide insert bits are interchangeable in each thread series.

With Timken interchangeable rock bits, drill steel inventory can be greatly reduced. And you can switch quickly to the most economical bit as the ground changes—right on the job!

With correct and controlled reconditioning, Timken multi-use bits give the lowest cost per foot of hole when full increments of steel can be drilled.

Timken carbide insert bits are the most economical for hard and abrasive ground. And they're best for maximum speed drilling, constant-gage holes, small

diameter blast holes and very deep holes.

The combination of Timken multi-use and carbide insert bits will answer all your drilling needs. And every Timken bit has these three important advantages: 1) made from electric furnace Timken fine alloy steel, 2) threads are not subject to drilling impact because of the special shoulder union developed by the Timken Company, 3) quickly and easily changed.

Backed by 20 years' experience in solving rock bit problems, the Timken Rock Bit Engineering Service will help you select the best bits for your job. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

**your best bet for the best bit  
... for every job**

**TIMKEN**

MINING WORLD



# BUILDERS



Overall air view of one of the most  
modern potash refineries in America

## OF Modern Potash Refineries

Plants like this potash operation require a minimum of operating labor and consequently will show profits in tomorrow's competitive markets.

Stearns-Roger engineers have built a national reputation for design, and construction of high capacity, economical plants in the mining, chemical and allied fields.

Stearns-Roger facilities developed over the last 68 years offer undivided responsibility for building of complete plants.

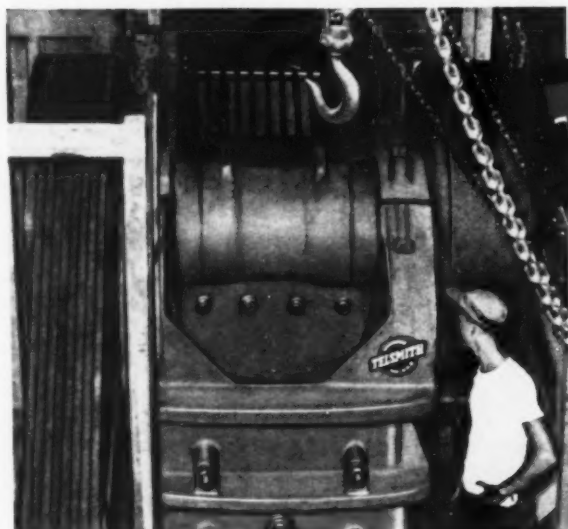
# Stearns-Roger

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THE STEARNS-ROGER MFG. CO. DENVER, COLORADO



Headframe and concentrator of Bluebell Mine at Riondel, British Columbia



Since placed in operation at the Bluebell Mine in April, 1952, this 25" x 36" Tel Smith has crushed about 95,000 tons in less than six months. Tel Smith Jaw Crushers are made in 9 sizes: 10" x 16" to 30" x 42"; capacities: 22 to 300 tons per hour.

Send for Bulletin 280.

# TELSMITH

## Jaw Crusher

**in one of Canada's  
oldest mining operations**

Over 100 years ago Indians and trappers got lead for bullets from the ore deposits on the shores of Kootenay Lake, near Trail, British Columbia. And here, today, the new mill of The Consolidated Mining and Smelting Company of Canada Limited, is handling large quantities of lead-zinc-silver ore to produce lead and zinc concentrate. All primary crushing is satisfactorily handled by a Tel Smith 25" x 36" Jaw Crusher at the rate of about 100 tons per hour.

Min. 35

**SMITH ENGINEERING WORKS, 4034 N. HOLTON ST., MILWAUKEE 12, WISCONSIN**

Mine & Smelter Supply Co.  
Denver 17, Colo.

The Sawtooth Company  
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Foulger Eng't. Co.  
Salt Lake City, Utah

General Machinery Co.  
Spokane 1, Wash.

Mines Eng. & Equip. Co.  
San Francisco 4, Calif.

Clyde Equipment Co.  
Portland 9, Ore. Seattle 4, Wash.

Garlinghouse Bros.  
Los Angeles 21, Calif.

Lee Redman Equip. Co.  
Phoenix, Arizona

Gordon Russell, Ltd.  
Vancouver, B. C.

# 20 YEAR SUCCESS STORY

## DIFFERENTIAL

### Air Dump Cars Serve the World's Richest Copper Mine

At this impressive ore deposit in Chuquicamata, Chile, Differential Air Dump Cars are used exclusively.

From an initial order for 20 cars (shipped in 1929) the Chuquicamata fleet of Differentials has grown to 120 cars. (And 60 additional cars are on order.) All dump cars purchased for this mine since the initial order in 1929 have been Differentials.

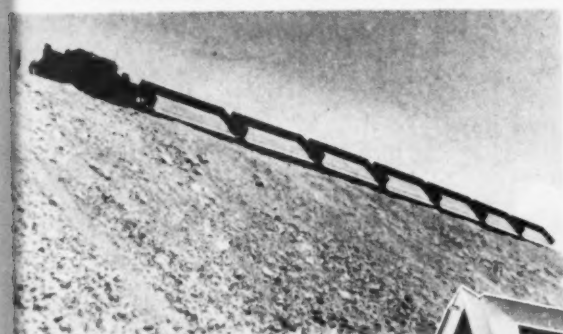
Today's Differential Air Dump Car shows some refinements but sticks to the original double-trunnion, double-fulcrum design which has earned a reputation for speedy, trouble-free and satisfactory performance through the years.

## DIFFERENTIAL

**STEEL CAR COMPANY**

FINDLAY, OHIO

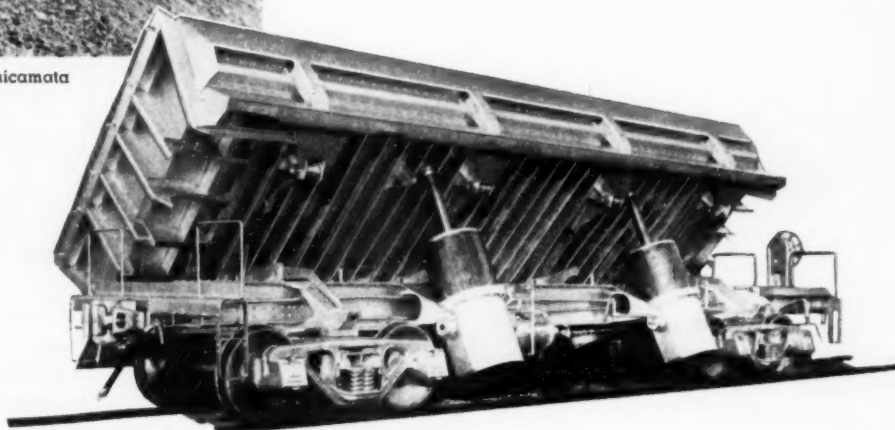
SINCE 1915, PIONEERS IN HAULAGE EQUIPMENT



Action photographs taken at Chuquicamata

#### OTHER DIFFERENTIAL PRODUCTS:

Locomotives, Mine Cars,  
Mine Supply Cars, Rock Larries,  
Mantrip Cars, Dumping  
Devices and Complete  
Haulage Systems

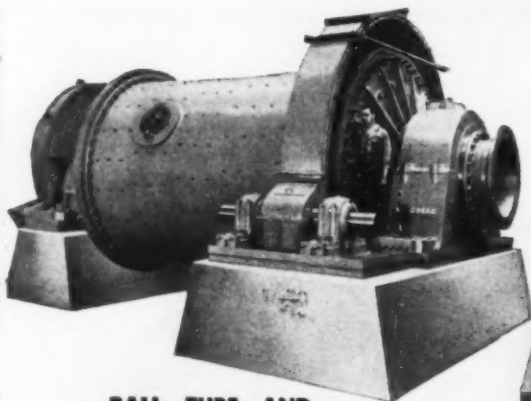
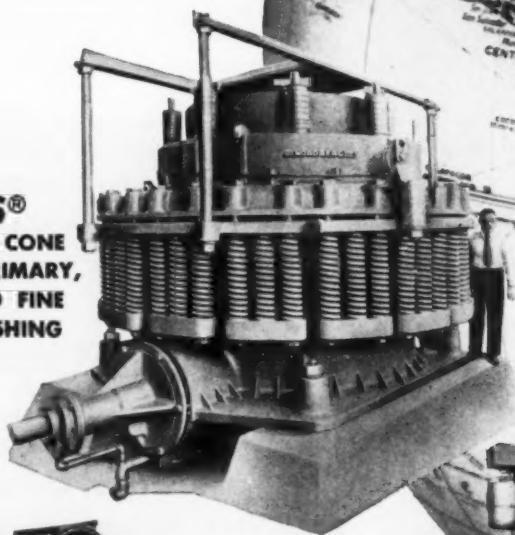




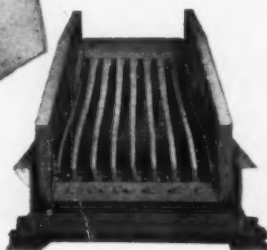
Wherever ores are processed



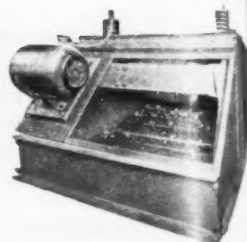
**SYMONS®**  
GYRATORY AND CONE  
CRUSHERS FOR PRIMARY,  
SECONDARY AND FINE  
REDUCTION CRUSHING



**BALL, TUBE, AND  
ROD MILLS FOR  
WET AND DRY  
GRINDING**



**SYMONS®**  
VIBRATING  
BAR AND ROD  
GRIZZLIES  
AND VIBRATING  
SCREENS FOR  
SCALPING  
and SIZING





FOR BASE METALS... PRECIOUS METALS...  
THE RARER ELEMENTS... NON-METALLICS AND MINERALS...

# NORDBERG

## MINING MACHINERY

is the *outstanding choice* of producers  
**THE WORLD OVER!**

- Without the vast ore processing operations in all parts of the globe, all industrial capacity would be seriously hampered. And without efficient, large-capacity mining machinery, these ore and mineral processing operations would fall far short of their required output.

It is highly significant that *wherever* mineral resources are found in quantity — efficiency minded producers are now using, or are in the process of installing, Nordberg Mining Machinery.

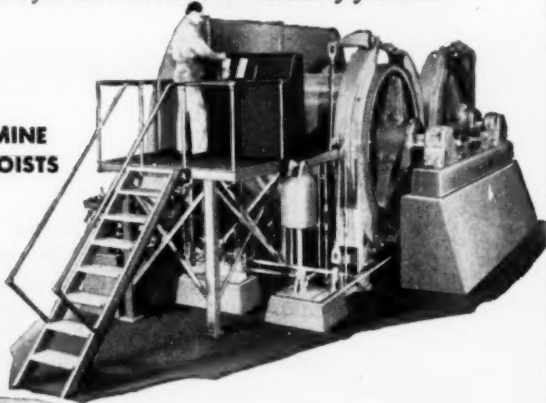
This dependable Nordberg Machinery is designed and built especially for the Mining Industry ... and includes Mine Hoists;

SYMONS Gyrotory Crushers for primary breaking; SYMONS Standard and Short Head Crushers for fine reduction crushing;

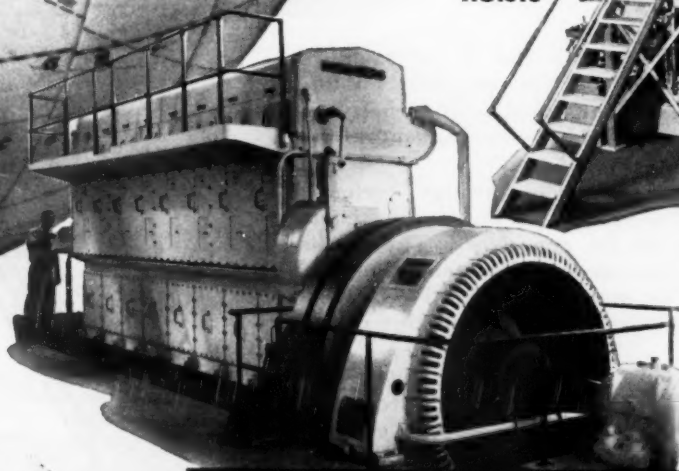
SYMONS Vibrating Grizzlies and Screens for scalping and sizing; Grinding Mills for wet or dry grinding; and a complete line of heavy duty Nordberg Diesel Engines in sizes from 10 to 10,000 H.P.

Write for literature on the machinery you need.

MINE  
HOISTS



DIESEL ENGINES  
2 and 4-cycle—  
10 to 10,000 H.P.  
Burn Gas, Oil or  
any combination  
of both



SYMONS ... a registered Nordberg  
trade mark known throughout the world.

# NORDBERG MFG. CO.

MILWAUKEE WISCONSIN

NEW YORK • SAN FRANCISCO • WASHINGTON • SPOKANE  
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Outstanding  
*Control*  
Means



Outstanding  
*Performance*

**E**XCLUSIVE improvements in the Ward Leonard rotating control system on Bucyrus-Erie walking draglines provide the excellent speed-torque characteristics that make this control ideal for big output on mining operations.

Small "pilot" exciters regulate, through exclusive Bucyrus-Erie features, the output of the main exciters . . . the field current to the DC generators. The results are exceptionally fast response, quick acceleration and deceleration of the driving motors . . . effectively speeding up the over-all operating cycle and thus increasing output.

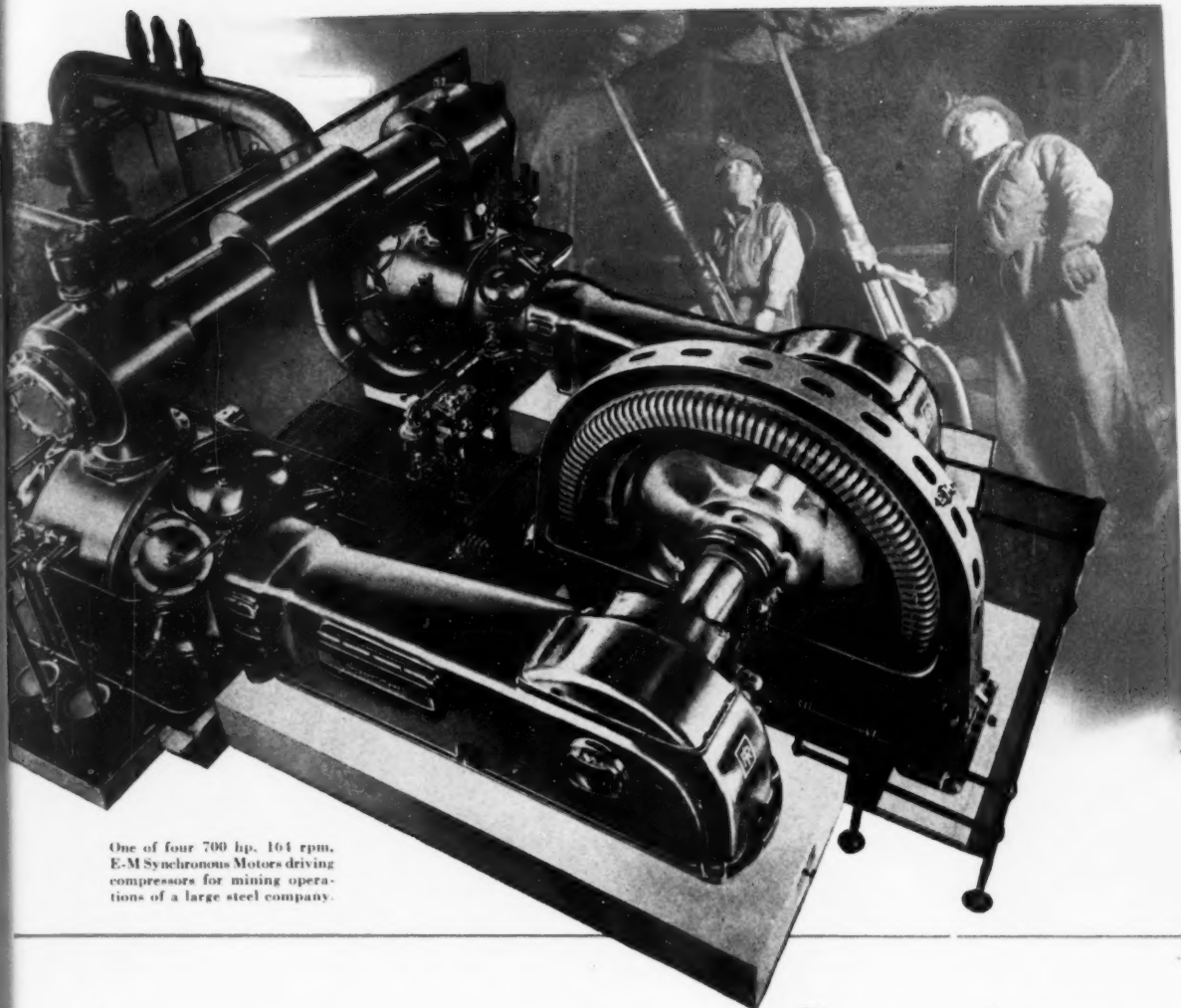
This contact-free variable voltage control system also helps reduce electrical and mechanical maintenance. Combined with heavy-duty milltype motors and efficient motor-generator units, it provides the finest electrical equipment available.

107L52



**BUCYRUS  
ERIE**

SOUTH MILWAUKEE  
WISCONSIN



One of four 700 hp, 164 rpm, E-M Synchronous Motors driving compressors for mining operations of a large steel company.

## How compressor manufacturers **Save money** ...for the user of Air Power



### **SYNCHRONOUS MOTORS** are the first choice for **COMPRESSOR DRIVES**

**LOWEST COST** operation because of inherently efficient design.

**DIRECT DRIVE** for simplicity and minimum maintenance.

**HIGH STABILITY** to keep motors going despite voltage dips.

**HIGH POWER FACTOR** for preferential rates, improved voltage regulation.

**LOWEST INSTALLATION COST** for only two basic motor parts, stator and rotor.

**MAGNETIC CONTROL** with push button starting, "Conscious control", provided by Polarized Field Frequency Relay, cooperates with the motor for smooth starts.

●Leading compressor manufacturers, experienced in furnishing millions of horsepower, recommend Synchronous Motors for most efficient large compressor operation. They have found that the qualities of a Synchronous Motor mean real savings to the user of air power. That's why motor and compressor are designed and built with matching characteristics . . . and why the Synchronous Motor is the standard drive for large compressors.

E-M pioneered the development of the Synchronous Motor, was one of the first to apply its use to compressors. Today, E-M motors are used on a big share of all compressor drives. Their selection for such important jobs as the one pictured here is based largely on high efficiency and resultant savings.

Installation after installation confirms E-M Synchronous Motors' recognized dependability, wins for them their reputation as "the most efficient drive in industry".

**ELECTRIC MACHINERY MFG. COMPANY**  
MINNEAPOLIS 13, MINNESOTA



A2049

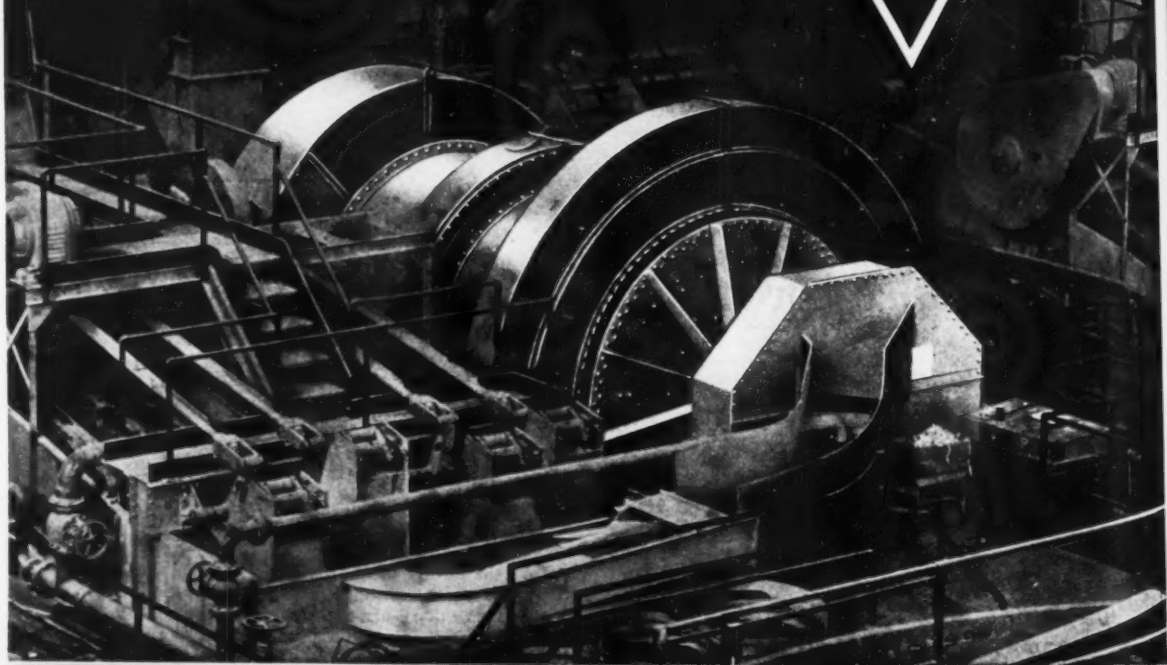


# BALLMILLS

WET OR DRY GRINDING

•  
OPEN OR CLOSED  
CIRCUIT

•  
ALSO AIR  
SWEEP FOR  
GRINDING  
AND  
DRYING  
•



## F. L. SMIDTH & CO.

11 WEST 42ND STREET

ENGINEERS  
MANUFACTURERS OF BALLMILLS  
SINCE 1895

NEW YORK, N. Y.



# Le Roi-CLEVELAND



**Sinkers  
Air Feeds  
Air Legs  
Drifters  
Jumbos  
Stoppers  
Compressors  
Tractair  
Shaft-Sinking Rig  
Wagon Drills**

## **LE ROI COMPANY CLEVELAND ROCK DRILL DIVISION**

12500 Berea Road,  
Cleveland 11, Ohio

PLANTS: Milwaukee, Cleveland  
and Greenwich, Ohio



## A Le Roi-CLEVELAND Sinker

*drills more footage per shift,  
stays underground longer!*

**This  
cross-section  
shows you why:**

- ① End-seating valve is fast and positive in action. It meters the air efficiently — keeps air consumption down, provides powerful force of blow and strong rotation. Performance of valve is not affected by wear.
- ② Positive lubricating system distributes oil throughout the machine and insures long life for all moving parts. Rifle bar is oiled at every stroke of piston. This prolongs the life of rifle nut and rifle bar

at least 30%.

- ③ All Le Roi-CLEVELAND Sinks are famous for strong, positive rotation. That's why they are at their best when the drilling's the toughest. Properly designed rotation parts — ratchet, pawls, rifle bar and rifle nut — plus efficient lubrication of these parts, give you this important drilling advantage.
- ④ Exhaust ports are large, to avoid freezing.

- ⑤ Plenty of hole-cleaning power is provided in all Le Roi-CLEVELAND Sinks, so that you can get the most out of their powerful force of blow and strong rotation. Bit wear is reduced and drilling speeds are faster.
- ⑥ Floating-type chuck permits slight misalignment without binding piston. This reduces piston scoring, adds to the life of the machine.
- ⑦ Throttle valve is designed to stay in any desired operating position from full-on to blowing. All parts are fully enclosed, protected from dirt, and generously lubricated.



**H23—83-pound sinker**  
Dry and wet types. 1" x 6" hex or quarter-octagon, 3/4" or 1 1/4" lug shank. Designed for shaft sinking in hard or bad, faulting ground in general drilling with best steel in hard rock.

# Le Roi-CLEVELAND

## Hand-Held SINKERS

## and Air-Feed DRIFTERS

A complete line of sinkers from 18 to 80 lbs.

with all the performance advantages

you look for: Low air consumption . . .

Easy handling . . . Strong rotation . . .

High drilling speed



### Le Roi-CLEVELAND

#### 2-way Air-Feed Drifter Drills

*Lighten load on miners  
Increase tonnages*

Two sizes are available: HC10R with 45-lb. drill. HC23R with 3 1/4" bore machine. Both models take the hardest part of the work out of drilling and speed it up, too. Here's why:

- (1) Lightweight pneumatic column (Model 83) supports the machine. Setting-up takes only a few minutes.
- (2) Changing steels is quick and easy — fast reverse feed saves time. There are no swing or dump nuts to loosen or tighten.
- (3) Feeding is done by air. Convenient controls let your miners get just the right pressure for maximum drilling speed in any rock.
- (4) Fast, light blows are just right for carbide bits. You get maximum bit life — can use smaller bits for higher drilling speeds.



During-drilling operation at one iron mine, an HC23 air-feed drifter is used with coupled steel to drill 70' holes.



H22 — 18-pound sinker

Wet and dry types. 7/8" x 3/4" chuck. Recommended for: Drilling holes for trolley hanger bolts. Cleaning up roof. Clearing out rock falls. Brushing bottom. Drilling oversize pieces at grizzly. Cutting hitches.



H166 — 33-pound sinker

Wet and dry types. 7/8" x 3/4" chuck. Recommended for hard coal. Also ideal for wet or dry drilling in shale, limestone, sandstone, etc.



H10 — 45-pound sinker

Dry, constant blowing, and wet types. 7/8" x 3/4" and 1" x 4/4" hex or quarter-octagon chucks. Wet automatic dust-control backhead if desired. A general-purpose drill for soft, medium, and hard ground. Mountings available for 24", 30", or 36" steel changes, hand-cranked or power feed.



H111 — 55-pound sinker

Dry, constant blowing, and wet types. 1" x 4/4" chuck (7/8" x 3/4" and popular sizes of quarter octagon and lugged steel chucks also available). Wet automatic dust-control backhead if desired. Primarily designed for hard rock, but equally efficient in soft and medium formations. Mountings available for 24", 30", or 36" steel changes, hand-cranked or power feed.



### New!

## Le Roi-CLEVELAND

## AL90 Air Leg

Use it as a Stoper...  
a Drifter... a Sinker

The new, lightweight Le Roi-CLEVELAND Air Leg makes sinker drilling underground easier and faster. It not only supports the drill, but also provides feeding pressure. That's why miners drill more footage with the AL90.

#### FEATURES

- 3', 4', and 5' feed legs.
- Full range of drill rotations.
- Only one air hose required.
- Convenient feed-leg control valve gives any desired feeding pressure.
- Bayonet lock permits quick dismantling for easy transportation.



# Le Roi-CLEVELAND Drifters

**Power-feed and hand-cranked models**

**Wide selection of steel changes**

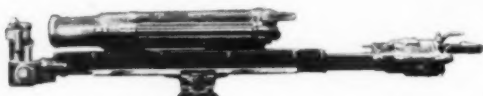
**Plenty of rotation power**

**Fast drilling speed**

**Durability that keeps them underground where they can do the most for you**



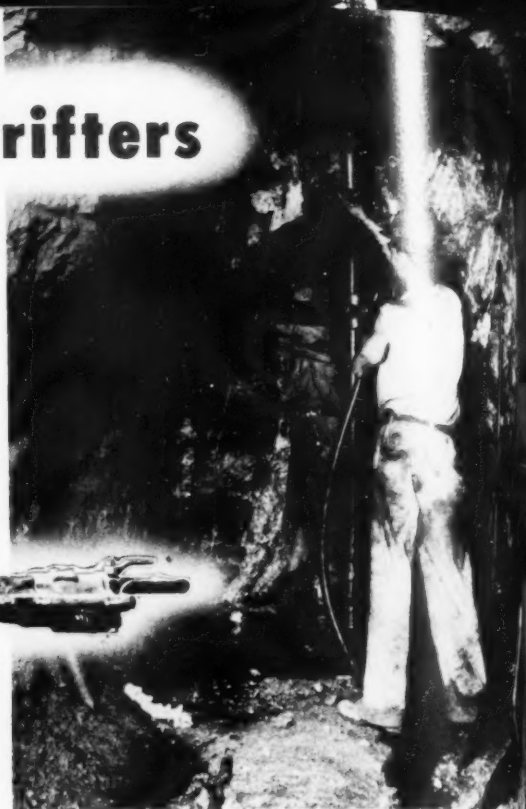
**PD14** — A heavy-duty 4" bore drifter, the most powerful in the Le Roi-CLEVELAND line. Especially suited for large-bore tunnel driving. Available with hand-crank or power feed.



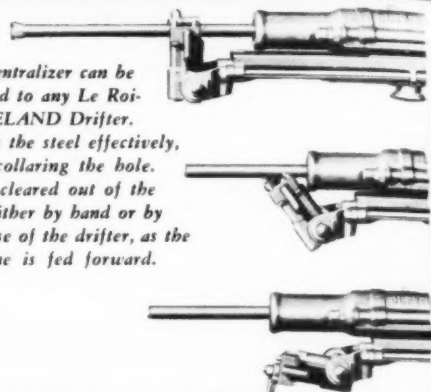
**PD24** — A lightweight 3" bore machine for one-man operation in any ground. The fastest drilling drifter in its class. Short-stroke feather-weight valve is unusually efficient. Available with hand-crank or power feed.



**PD25** — For tunnel driving, drifting, and general drilling under the toughest conditions. A 3 1/2" bore machine that is plenty fast, has strong rotation and powerful hole-cleaning action. Available with hand-crank or power feed.



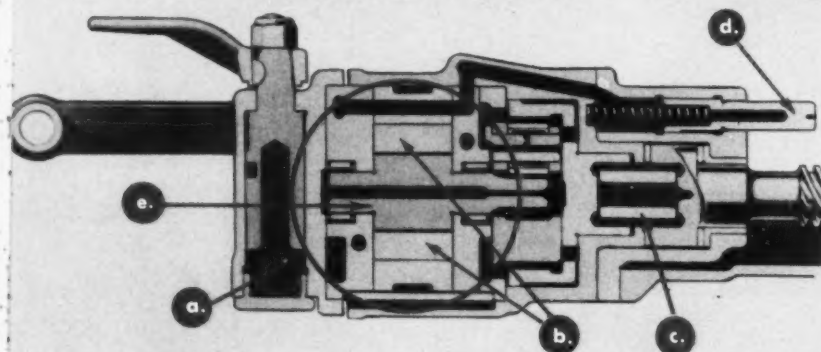
This centralizer can be attached to any Le Roi-CLEVELAND Drifter. Directs the steel effectively, when collaring the hole. Easily cleared out of the way, either by hand or by the nose of the drifter, as the machine is fed forward.



## Advantages of Le Roi-CLEVELAND Power Feed

- **Faster steel changes**
- **Reduced operator fatigue**

- **Constant rate of drilling**
- **More footage per shift**

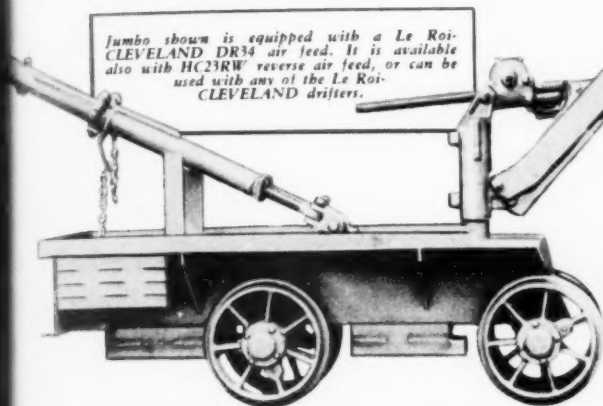


- a. Motor proper is vane-driven, double-lobe type. Power is applied at diametrically opposite points of rotor — for better feeding action, more constant torque.
- b. Vane-type design provides fast, positive feeding — uses little air.
- c. Floating-joint construction and thrust washers absorb shocks, reduce upkeep.
- d. Exclusive automatic shut-off valve prevents drifter from hitting feed motor, when changing steels.
- e. One-piece rotor is carried on roller bearings at both ends. The three intermediate gears also operate on roller bearings.

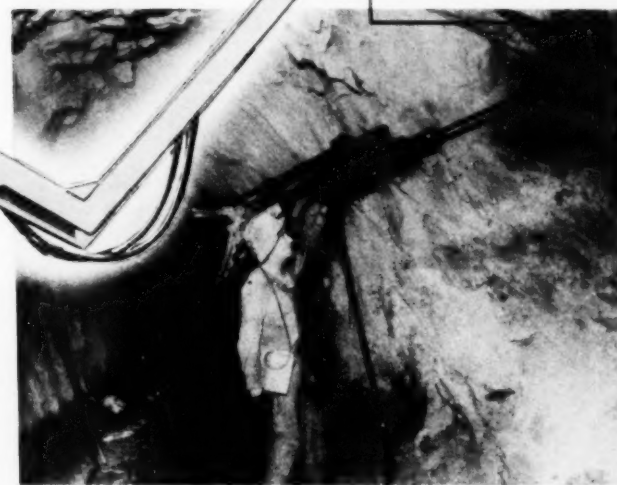


# Le Roi-CLEVELAND Self-Leveling Mine Jumbo

with 4' steel-change Air-Feed Drifter



Jumbo shown is equipped with a Le Roi-CLEVELAND DR34 air feed. It is available also with HC23RW reverse air feed, or can be used with any of the Le Roi-CLEVELAND drifters.



Le Roi-CLEVELAND Self-Leveling Mine Jumbo and HC23RW Air-Feed Drifter with 4' steel change in Western zinc and copper mine.

Saves time drilling lifters. Lets your miners drill the right round for any ground.

**Self-leveling, air-motor-powered arm** lets miners spot and space holes quickly and easily, for the most efficient fragmentation. They don't have to loosen a bolt or tilt a boom, to complete the drilling cycle.

**Exclusive rigid screw and gearing mechanism** keeps the heading

straight, cuts down overbreak and underbreak. Keeps the drifters in line, prevents the steel from binding, reduces chuck wear.

**Offset arm** provides plenty of clearance to drill lifters — without having to take time out to swing the drill under the arm.

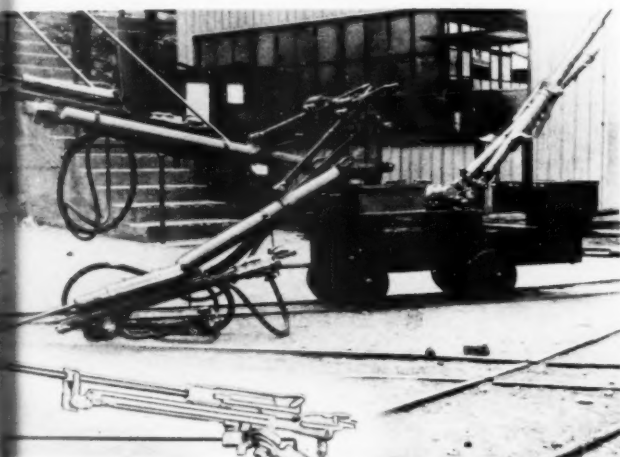
The Le Roi-CLEVELAND Self-Leveling Mine Jumbo is available in either single-arm or double-arm construction.

## Le Roi-CLEVELAND MDR Jumbo

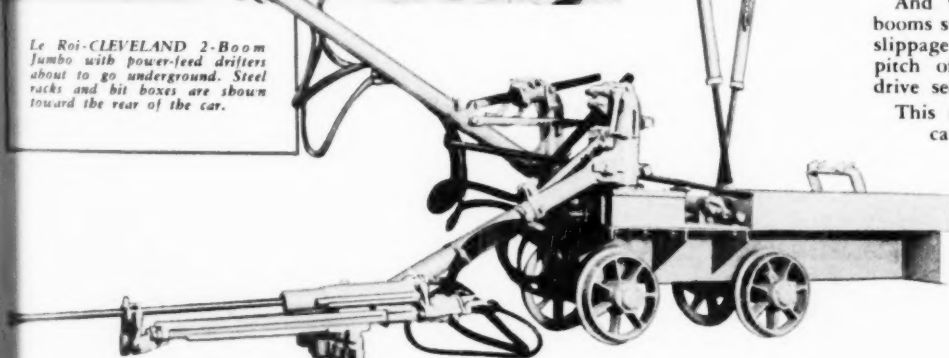
Le Roi-CLEVELAND Jumbos—equipped with air-motor-powered booms — make the work of drilling a round easier, faster, safer. All the operator has to do to quickly spot his drifter is open the conveniently located operating valve. Then a powerful, compact Le Roi Air Motor takes over, raising or lowering the boom rapidly to the desired drilling position.

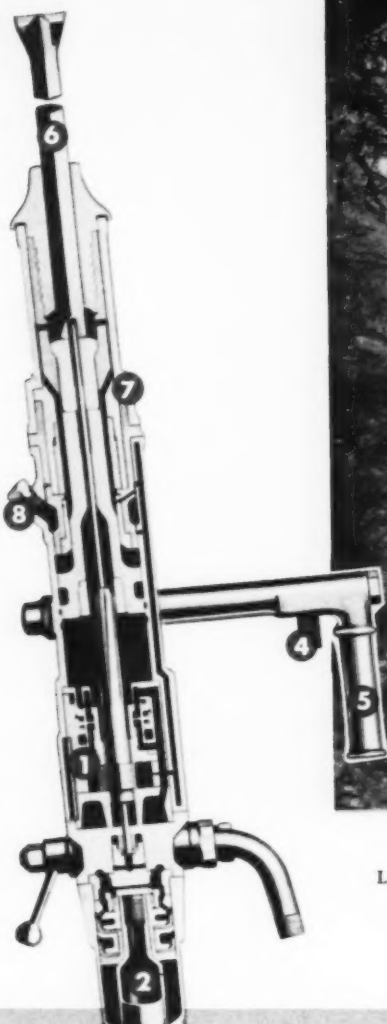
And what is more important, these booms stay where they're put. There's no slippage to cause misalignment — the pitch of the lifting screw and worm drive sees to that.

This means lower costs for you, because: Chucks and chuck bushings have longer life; machines don't get hammered, so last longer; drilling is uninterrupted and takes less time.



Le Roi-CLEVELAND 2-Boom Jumbo with power-feed drifters about to go underground. Steel racks and bit boxes are shown toward the rear of the car.





Cross-section showing design and construction of Le Roi-CLEVELAND Stoppers. These machines are available in 90- and 120-lb. sizes.



Short length of offset design makes Le Roi-CLEVELAND S115 Offset Stoppers easy to handle. Also provides 36-inch steel changes. Lets miners drill more feet per shift with less effort.



Here's a day's work for just one \$115 in this metal mine: 36-to-40-foot holes, vertical, flat, any desired angle, using coupled steels. Footage per man-shift, 120 to 150 feet.

## 8 reasons why your stoping operations *Go Faster, Cost Less* with **Le Roi-CLEVELAND** Stoppers

- ① End-seating valve has short travel. Its snappy action provides powerful blow, strong rotation, and fast drilling speed. Air consumption is low and valve efficiency is not affected by wear.
- ② Air-feed piston is an integral forged tube — not welded or brazed.
- ③ Inside of air-feed cylinder is polished, to provide free action and insure longer life for cup leathers.
- ④ Air-feed relief control trigger is close to operator's thumb as he holds the handle grip. Slight pressure on the trigger eases up on the air feed — more pressure drops the drill back slightly, or returns it to its fully closed position.
- ⑤ Trip rotation lets the operator stop and start rotation at will — a big help in collaring the hole. It's a safety factor, too. When a steel sticks suddenly, the pull of the rotation on the operator's hand turns the hand-grip sleeve, stopping the rotation before the machine can cause injury.
- ⑥ Constant blowing around the steel keeps cuttings out of the chuck.
- ⑦ Rotating sleeve and spacer are built to withstand wear and fatigue.
- ⑧ Efficient lubrication protects all surfaces, adds to the dependability of Le Roi-CLEVELAND machines.

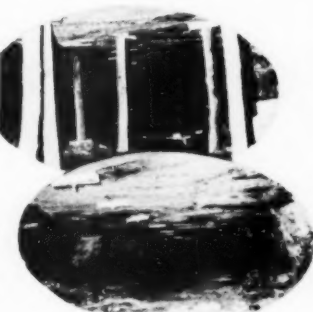
# Le Roi-CLEVELAND STOPERS

A complete range of sizes to meet every mining condition

*Not this...*

*but this...*

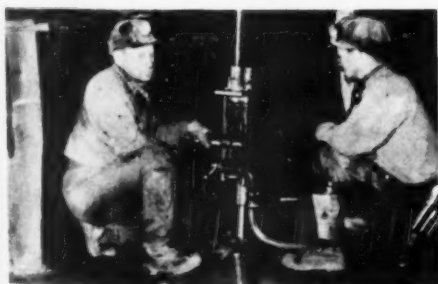
means increased production, greater safety



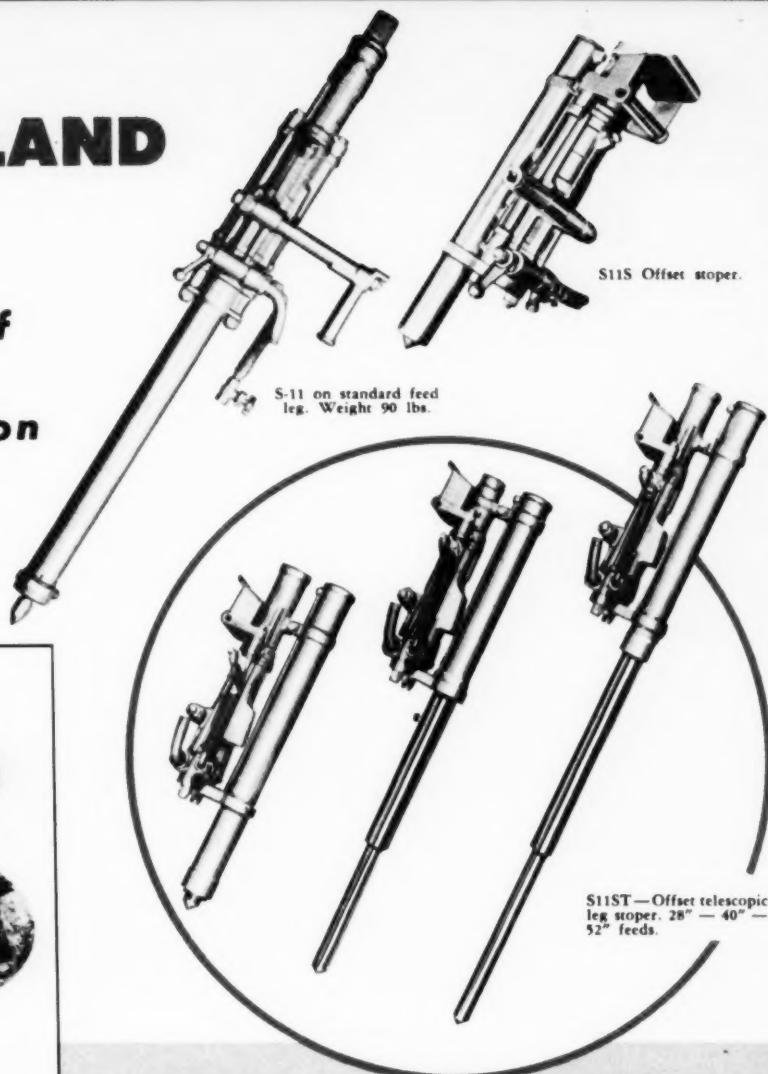
## Roof Bolting is Easier and Faster with Le Roi-CLEVELAND "OFFSET" STOPERS

— another famous Le Roi first

- Complete range of sizes for every mining condition including low coal.
- Easy to handle — fast drillers.
- Durability keeps Le Roi-CLEVELAND Stopers underground.
- Trip rotation lets you use the same stoper for driving roof bolts that you use for drilling.



The start of a roof-bolting program. Soon the timbers will go.



## New Le Roi-CLEVELAND HD1 Hydraulic Coal Drill

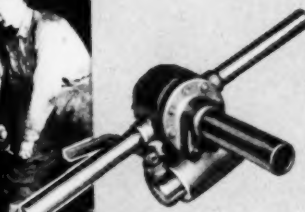
*No shock! No spark! No Kick!*

Gives you unique advantages over other sources of rotary power:

- (1) Easy to handle. Weighs only 32 pounds.
- (2) Fast drilling. Plenty of power for fast holes. Has convenient throttle lever with graduated feeding to suit varied coal seams.
- (3) No electricity. No spark or shock.

Powered by the hydraulic system of universal cutting machines, timbering machines, hydraulic roof-bolting machines, or other hydraulic power systems.

- (4) Low-starting torque. Can be stalled under load without damage.
- (5) Simplified design. Minimum of parts reduces maintenance cost. All internal parts shielded from dust.



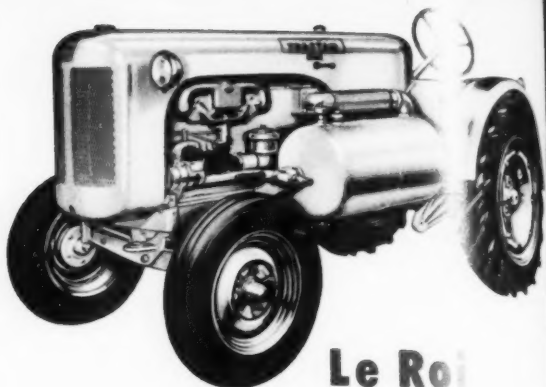




## Le Roi AIRMASTER COMPRESSORS

Widest range of portable compressors ever offered — 10 sizes, 14 models, 60 to 600 cfm., gasoline- or diesel-powered. Lets you match your job requirements *exactly* with the portable compressor that does the most work at the least cost.

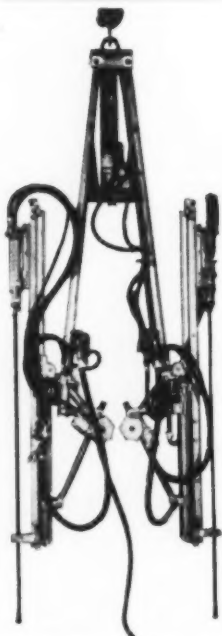
Exclusive Le Roi features include: Cushioned air valves. Push-button electric starting. Improved intercooler design. And many other features for economy, trouble free operation, long-life. Popular mounting styles are available, including skid mountings.



## Le Roi TRACTAIR

A versatile combination 35-hp wheel tractor and 105-cfm compressor. Easily and quickly takes air power anywhere.

Pays off in lower costs and minimum investment in special equipment. When equipped with front-end loader and attachments, can be used for loading, lifting, backfilling, snowplowing, etc. Tractair's usefulness can be multiplied further, by using Le Roi-CLEVELAND Mobildrill (light wagon drill) attachments and other Le Roi-CLEVELAND air tools, such as sinkers, paving breakers, clay diggers, tampers, etc.



## Le Roi-CLEVELAND Self-Leveling Shaft-Sinking Rig

Consists of Le Roi-CLEVELAND air-feed rock drills, air and water hoses, line oilers, and drill-steel centralizers. Sizes available for any shaft-sinking job.

Cuts costs three ways: (1) *Saves handling time* — Can be dropped or withdrawn from shaft as a unit. Air motors control arm spread, make positioning fast and easy. (2) *Speeds drilling* — On one job, drilled out 42-hole round in less than one hour. Conventional method on same job took 3½ hours. (3) *Reduces drill-steel handling* — You can use 6-foot steel changes with tungsten carbide bits.

## Le Roi-CLEVELAND WAGON DRILLS



**DR30** — Puts deep holes down faster — with less air — than any other wagon drill available. Uses 4" bore Le Roi-CLEVELAND drifter. Patented air feed provides 8-foot travel for 6-foot steel changes. Has strong rotation and powerful hole-cleaning ability.



**DR34** — Lightweight wagon drill. Drills at any angle—too holes 4 inches from ground or flat holes 7½ feet from ground. Two sizes of rock drills available — the 45-lb. H10 or the 80-lb. H23 with 3½" bore. 7-foot feed travel provides 6-foot steel changes.

For detailed information, write for individual product bulletins and prices.

# CLEVELAND ROCK DRILL DIVISION

## Le Roi Company

12500 Berea Road • Cleveland 11, Ohio  
PLANTS: Milwaukee, Cleveland and Greenwich, Ohio



# Estimating PRODUCTION AND COSTS



## OF Material Movement WITH Euclids



**HERE'S  
HELP**

WITH YOUR  
**ESTIMATING  
PROBLEMS**

### PART I ESTIMATING PRODUCTION






#### JOB ANALYSIS

A basic knowledge of the job, and of the hauling equipment being considered for the job, is necessary to prepare a hauling production and cost estimate. Careful preparation and thorough analysis are re-

quired, and an accurate estimate of production must take into consideration the material being moved and the various components of a complete hauling cycle. These are as follows:

#### HAULING CYCLE COMPONENTS

##### CONTRIBUTING FACTORS

 <b>LOAD</b>	Size and type of loading machine. Type and condition of material to be loaded. Capacity of hauling unit. Skill of the operator.
 <b>HAUL</b>	Performance ability of hauling unit. Hauling distance. Haul road condition. Grades. Miscellaneous conditions affecting haul speed.
 <b>DUMP</b>	Destination of material. Type and maneuverability of hauling unit. Type and condition of material.
 <b>RETURN</b>	Performance ability of hauling unit. Return distance. Haul road condition. Grades. Miscellaneous conditions affecting return speed.
 <b>SPOT</b>	Maneuverability of hauling unit. Type of loading machine. Location of loading equipment.

2

This enlarged and revised Euclid manual shows how to make a job analysis and provides a method of estimating production and costs for off-the-highway hauling equipment. It will enable you to determine the number and size of hauling units required for any job, and the estimated

cost of moving material per cubic yard or ton.

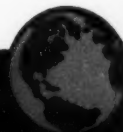
You'll find the data contained in this book helpful and easy to use. If you haven't received a copy, contact your Euclid Distributor, or write us direct . . . on your letterhead, please. There is no charge or obligation, of course.

**The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO**

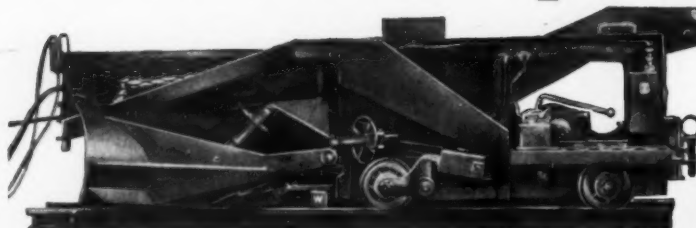
# EUCLIDS



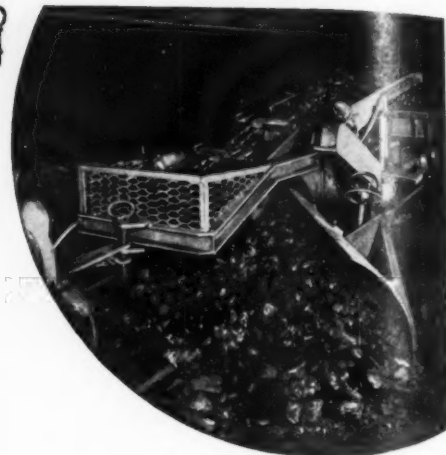
*Move the Earth*



# "American M.D.\* products" for Savings

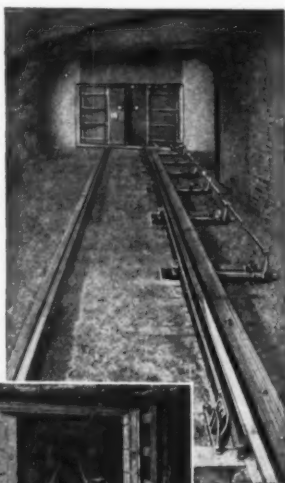


"Canton" Track Cleaner  
in action!



## "Canton" Track Cleaner digs out gob — Recovers Coal.

Today, track cleaning is not a costly headache . . . it is a pleasant, profitable operation. No track workers to get hurt. Clean tracks once thoroughly with the Canton Track Cleaner. Then subsequent cleanings yield good coal. Load cars higher, haul more tonnage. Reclaim spillage mechanically. Write us for name of nearest mine where you can make inspection.



Write us what your track cleaning costs are and how many miles of track you clean, and we will show you how much extra profit you can make with a "Canton" Track Cleaner, after it has paid for itself.

## The "American" Mine Door Speeds up Trips for Profit.

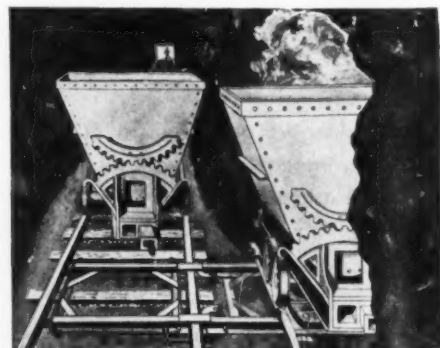
Insurance against accidents, increased haulage, continued speed ahead with "Canton" Automatic Doors make it imperative that every mine owner and manager investigate the economy proven by a quarter century of American Mine Door service.

Canton Doors are self-liquidating in a short period. Note the photos . . . when the oncoming train rides the trip levers . . . flip, the doors open; when the last car passes . . . release, the doors spring shut . . . positive action and reaction . . . all mechanical, in split seconds.

## The "Canton" Car Transfer Loads entire Train, Single Track

The Canton Car Transfer saves time and money where tunnel space is costly. You are continually loading an empty while transferring the full car to rear. The Canton is easiest to use. Timken bearing equipped, sturdy, long-lasting construction. Canton Car Transfers are made for all track gauges . . . can be placed on track at any spot where side room permits, in two minutes by two men . . . built to hold cars up to six tons in weight.

Write for complete descriptive folders. In answering, please use street and zone numbers.



**\*American Mine Door Company**

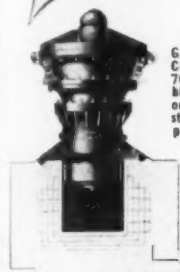
2071 Dueber Avenue  
Canton 6, Ohio

Manufacturers of "Distributors"—Automatic Switch Throwers—Automatic Mine Doors—Mechanical Track Cleaners



# CRUSHING MACHINERY and EQUIPMENT, COMPLETE MINING PLANTS

*... in use the world over!*

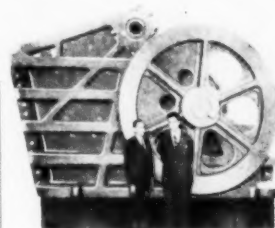


**GYRATORY CRUSHER**—70 degree double discharge outlets solve sticky ore problem.

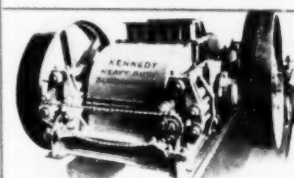
KVS machinery and equipment is designed, engineered and built to serve the mining industry. Scientific, physical aids that combine utmost utility with rugged stamina . . . the kind of machinery that produces peak capacities with a minimum of maintenance.

An outstanding characteristic of KVS equipment is the fact that all parts are standardized . . . replacements can be made by any qualified machinist . . . spare parts FIT, because they are machined to exacting tolerances . . . ready for instant use. When the rare occasion arises where replacements are necessary, air express deliveries bring you the part needed anywhere in the world and the machine is back in operation within a matter of hours!

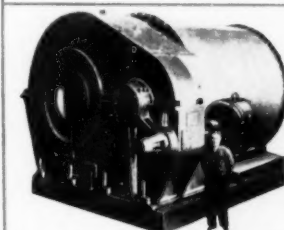
Enthusiastic users tell us that KVS machinery is breaking all records for producing maximum rock tonnage at minimum operating cost. Our engineers are available at any time for consultation on *your* crushing and handling problems. Write, cable or phone.



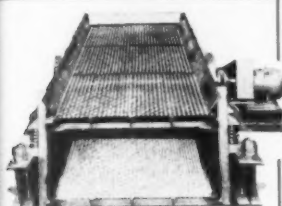
**SWING JAW CRUSHER**—Heavy duty; reversible swing jaws.



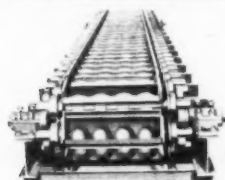
**SLUGGER ROLL**—Reduction variable from 2" to 10" while operating.



**TUBE MILL**—Drives KVS mills of any diameter, length.



**VIBRATING SCREEN**—1, 2, 3 decks; 4-way, variable-speed vibration.

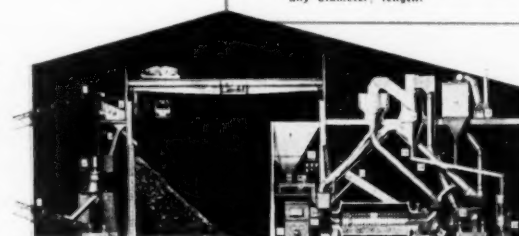


**ROCK FEEDER**—Up to 20'/minute feeder speed.



**ROTARY KILN** — Maximum production; gear reduction operation.

Send for illustrated bulletins describing all KVS products.

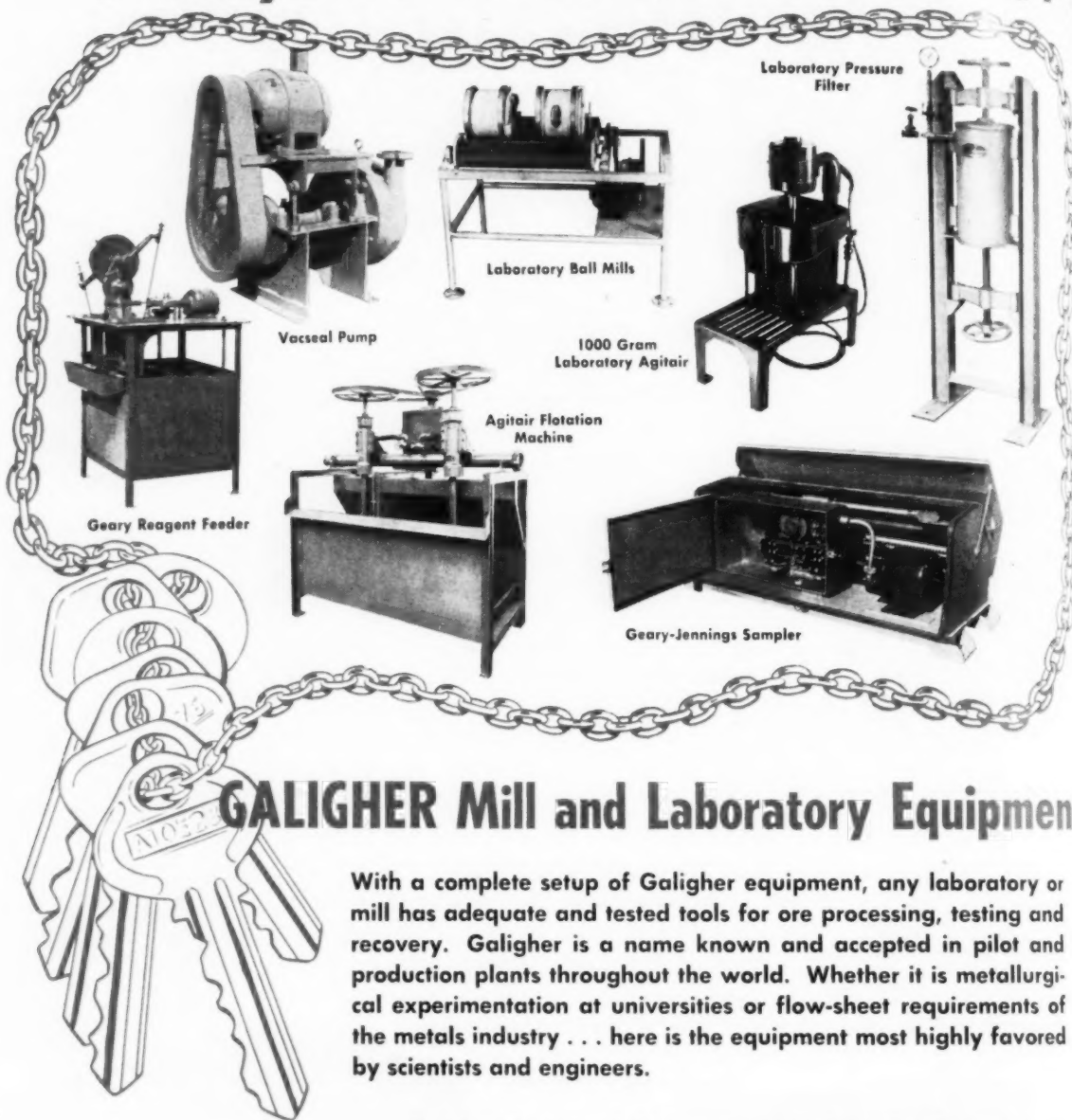


**AIR SWEEPED TUBE MILL**—Produces 94% plus through 325 mesh when grinding -2" clinker.

**IT COSTS  
LESS..  
TO OWN  
THE BEST!**

**KENNEDY - VAN SAUN**  
MANUFACTURING & ENGINEERING CORPORATION  
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# 7 keys to sound metallurgy



## GALIGHER Mill and Laboratory Equipment

With a complete setup of Galigher equipment, any laboratory or mill has adequate and tested tools for ore processing, testing and recovery. Galigher is a name known and accepted in pilot and production plants throughout the world. Whether it is metallurgical experimentation at universities or flow-sheet requirements of the metals industry . . . here is the equipment most highly favored by scientists and engineers.

Catalog data available on request. Special information on any of these seven standard items will be promptly supplied. Write us today.

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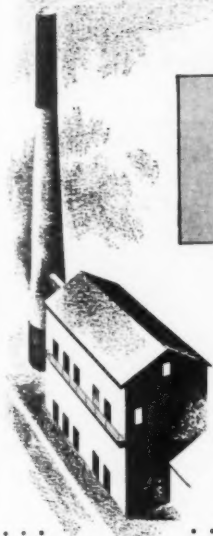
Agents In All Principal  
Foreign Mining Districts

# THE GALIGHER co.

**CONSULTATION • ORE TESTING  
PLANT DESIGN • GEOLOGIC INVESTIGATION**







# FUMEALL\*

TRADE MARK

the superior **filter fabric**  
for fume, dust and liquid

COMPARE THESE FEATURES  WITH YOUR PRESENT FILTER FABRIC

## Tailored Fabric

**FUMEALL** is tailored to your needs—the correct weave, finish, weight and strength for every filtering operation.

## Operational Life

**FUMEALL** often lasts three times as long as conventional all-wool filter fabrics in actual operation.

## Filtration Characteristics

**FUMEALL** is superior because it combines the proved filtering properties of virgin wool with the acid, alkali, and heat-resisting qualities of Dynel.

## Heat Resistance

**FUMEALL** operates perfectly in heat ranges up to 300° F. even in the presence of adverse acid and alkaline conditions.

## Moisture Absorption

**FUMEALL** moisture absorption is 50% less than conventional all-wool fabrics in intermittent filtering operations.

## Strength Properties

**FUMEALL** maintains a higher strength level throughout its life than conventional all-wool fabrics because it is blended with Dynel, a synthetic fiber developed by Union Carbide and Carbon Corporation.

## Air Permeability

**FUMEALL** maintains the correct air permeability during operation, thus giving more efficient filtration and greater capacity.

## Cost Factors

**FUMEALL** costs considerably less than any other filter fabric when measured in terms of operating life, recovery and maintenance.

INDUSTRIAL FABRICS DIVISION

## Portland Woolen Mills, Inc.

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Industrial Fabrics Division  
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Please send me additional details and samples of FUMEALL suitable for  
☐ fume collection ☐ dust collection ☐ liquid filtration

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\* Patent Pending

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**35 Countries...1,056 Lectromelt Furnaces...2,480,000 KVA**

**LECTROMELT  
FURNACES  
THE WORLD  
OVER**

Country	No. of Furnaces	Country	No. of Furnaces
AFRICA .....	28	MEXICO .....	20
ARGENTINA .....	2	NEW CALEDONIA .....	2
AUSTRALIA .....	12	NEW ZEALAND .....	4
BELGIUM .....	2	NORWAY .....	2
BOLIVIA .....	2	PANAMA CANAL .....	2
BRAZIL .....	30	REP. OF PANAMA .....	1
CANADA .....	50	PERU .....	4
CHILE .....	11	PHILIPPINE ISLANDS .....	3
CHINA .....	17	POLAND .....	3
COLOMBIA .....	7	PORTUGAL .....	4
DENMARK .....	2	RUSSIA .....	69
ENGLAND (BR. ISLES) .....	70	SPAIN .....	26
FINLAND .....	4	SWEDEN .....	8
FRANCE .....	4	TURKEY .....	2
HAWAII .....	1	UNITED STATES .....	635
ITALY .....	16	URUGUAY .....	1
INDIA .....	9	VENEZUELA .....	1
JAPAN .....	2		

Manufactured in . . . CANADA: Lectromelt Furnaces of Canada, Ltd., Toronto 2 . . . ENGLAND: Birlac, Ltd., Birmingham . . . FRANCE: Stein et Roubaix, Paris . . . BELGIUM: S. A. Belge Stein et Roubaix, Bressoux-Liege . . . SPAIN: General Electrica Espanola, Bilbao . . . ITALY: Forni Stein, Genoa.

\*REG. T. M. U. S. PAT. OFF.

WHEN YOU MELT... **MOORE RAPID**  
*Lectromelt*



# AN ACCOUNTING OF WORLD MINING FOR 1952



By **CHARLES WILL WRIGHT**, consultant on foreign mines. Member AIME.

Although the United States has long led all other countries in both production and consumption of most mineral products, the trend seems definitely toward an increasing dependence upon foreign sources of supply. Efforts to speed-up our metal production to meet demands for the defense program have added but little to the annual output. The past, present, and future position of the United States, as well as that of the world, relative to mineral production and consumption is clearly presented by the Paley Commission in its report *Resources for Freedom*. The statistical tables show our production and consumption of primary metals and ores for 1952, 1950, and 1975, and, although the estimates for 1975 have been questioned by some of the large United States' metal producing companies, they do indicate that 1,000,000 tons of copper, 900,000 tons of lead, 750,000 tons of zinc, and 1,500,000 tons of manganese ore will have to be imported to meet 1975 requirements. The normal increase in consumption of metals due to population and industrial growth averages 3 percent per year, according to the Paley Commission report.

Because of nationalistic tendencies in many producer countries, the problem of supplying minerals to meet the needs of our growing industries is far more serious than is generally believed. *Mining World* in its March 1953 issue published a paper entitled "Mineral Consolidation" which outlined our metal and mineral requirements and why we are not getting these vital supplies from abroad. It made an attempt to indicate ways to help solve the supply problem.

The search for and development of mineral commodities continued at an accelerated pace on a world-wide scope throughout the year. With approximately

\$200,000,000,000 committed to be spent at home and abroad for defense and rearmament of the free nations for the years 1950 to 1953, the minerals industry of this group of nations, naturally, continued in high gear throughout the year.

The largest share of the vast sum named above goes to provide the raw materials and munitions of defense. To illustrate the task imposed upon the minerals industry, approximately \$56,000,000,000 is to be spent or underwritten by contracts between July 1, 1952 and July 1, 1953.

This summary will be confined to brief mention of technical progress in mineral exploration, mining methods, ore treatment practice, and to our national mineral policy. The individual mineral commodities are discussed in appropriate chapters in this annual review.

## PRODUCTION HANDICAPS

Strikes, shortages of supplies, unstable markets, and a number of other items of minor import affected the United States mining industry during the year in review, but all obstacles were overcome, and a record production of metals and minerals achieved. Strikes closed the country's steel plants and shook Washington for weeks, but this industry showed a remarkable comeback when the storm subsided. Approximately 73,000,000 tons of iron ore were moved down the Great Lakes, thus obviating the need of supplementary rail haulage this winter. Capacity and production rates of steel plants increased, although the goal for the year was not attained.

## MINERAL EXPLORATION

Mining companies are making greater use of geophysical methods to help in the search for ore bodies to replace their depleted ore reserves. The airborne magnetometer has won an important place in exploration and is often combined with airborne electrical resistivity surveys. Such methods have resulted in discovery in Canada of copper-nickel deposits near Sudbury, Ontario, a large pyrite deposit on the north coast of British Columbia, and a nickel deposit in the lower Fraser River area. Lundberg Explorations Ltd. also reports the discovery of important magnetite deposits in northern Sweden. In the United States, as well as abroad, increasing use of the airborne scintillometer has aided the search for uranium deposits and a greater use has been made of Geiger and other hand-carried counters.

A number of significant advances in diamond drilling equipment and practice were made during the year. These are described in detail by R. D. Longyear in a symposium on diamond drilling published in the April 1952 issue of *The Journal of Chemical Metallurgical and Mining Society of South Africa*. Mr. Longyear reports that the deepest diamond drill hole in the United States (excluding rotary drilled oil wells using dia-



and **JOHN BEAUPRE DORSH**, Engineer of Mines, Member AIME.

mond core bits) was completed in 1952. This reached a depth of 6,010 feet, and was an 80° hole. A separate high-speed hoist was designed to raise and lower the tools. The feed was regulated by means of a hydraulically tensioned control cylinder.

Investigations with diamonds, oriented to take advantage of their maximum wear resistance, were continued by the U. S. Bureau of Mines at Mt. Weather Mining Research Station in Virginia. This method has proved of value as such setting is found to be feasible and not unduly costly. A considerable number of bits with oriented stones set by regular employees of commercial diamond drill manufacturers now are undergoing comparative tests by contractors. Reduced cost per foot of hole and reduction in loss of diamonds are expected.

Of interest is the rate of exploration drilling for uranium on the Colorado Plateau, which has increased from a total of 210,000 feet in 1948 to 2,200,000 in 1952. More than half of this drilling is carried on by the U. S. Atomic Energy Commission and the United States Geological Survey. For holes not deeper than 100 feet, wagon drills with percussion bits are used.

## ADVANCES IN MINING TECHNIQUE

1952 has recorded a marked trend toward larger, more rugged underground loading and transportation units. New machinery, improved equipment, and advanced practices are, in a large part, responsible for developing new ways of mining, stopping methods, and transportation systems. It is true that only new mines can cash-in to the fullest extent on the new ideas that are under test and demonstration throughout the industry.

The problem of meeting increased wages with increased output per man shift is being solved by use of more efficient mechanical equipment. In underground mining operations, this problem is being met by extensive use of light weight drills on pneumatic legs. This type of equipment is now standard apparatus in stopes. It is also meeting with success in raises and drifts.

Alloy drill rods, with tungsten carbide insets in chisel bits shaped after the Carr bit, are coming into more extensive use. The advantages of these light weight drills using 3/4-inch steel are greater drilling speed, lower air consumption, less time required for setting up machines, higher efficiency in tons per man shift, and less capital investment. The Ingersoll-Rand Company now has the JR-38 Jack drill using 3/4-inch alloy steel rods with tungsten carbide insets and designed for an airleg. The total weight including airleg is 88 pounds. Gardner-Denver Company likewise has a light airleg-mounted drill for carbide drilling—the S-48 sinker which weighs 45 pounds. Copco Eastern Ltd., Paterson, New Jersey is also introducing a light and heavy drill using an airleg to meet varied conditions. The increasing use of tungsten-carbide bits is illustrated at the Homestake gold mine at Lead, South Dakota, where the one-use steel bits, which were used in drifts and stopes, are now being replaced by the carbide bits throughout the mine.

Long-hole drilling with jointed rods and carbide bits is replacing the use of diamond drills for holes under 100 feet in length. Increasing interest is being shown in rotary drilling in limestone and other relatively soft rocks. Rotary drills with tungsten carbide insert bits, using a 4-inch drill mount on a 12-foot carriage, are being tested at Kennecott Copper Corporation's Utah copper mine in open-pit blast hole drilling.

Millisecond delay blasting caps and millisecond timer blasting machines are producing better fragmentation in open-pit mining. Millisecond delays are also used extensively in underground mining. Experiments are being continued by the U. S. Bureau of Mines with millisecond delays caps in heading rounds at Mt. Weather, Virginia and in the open stopes at Rifle, Colorado. Experiments at the Rifle oil-shale mine have demonstrated that timing of millisecond delays has an important effect on fragmentation and that for any set of conditions an optimum delay between adjacent holes exists. The experiments also showed that when more than one row is shot the delay should be long enough to allow the first rows to be unburdened. The results at Rifle were described by Fred D. Wright at the Duluth Mining Symposium early in February 1952.

Millisecond delay detonating of double row and multi-row shots has been found advantageous in the open-pit copper mine of Chile Exploration Company at Chuquibambilla, Chile. This allows shortening of toes and widening of hole spacing. Timing is controlled by electric motor driven timers instead of millisecond delay detonators.

The block caving method underwent notable improvement at the Jeffrey mine of Canadian Johns-Manville Co., Ltd., at Asbestos, Quebec. The junior author of this article helped develop block undercutting at the Consolidated Coppermines Corporation at Kimberly, Nevada, two decades ago, and this is being successfully employed now. With the publicity attached to this method, undoubtedly it will find wider application. The method under discussion is that of slusher-dis-

charging directly into cars on the main haulage level through short transfer raises. Johns-Manville plans a daily output of 12,000 tons by this method, whereas Kimberly accounted for but 6,000 tons per day. An innovation by Johns-Manville is the use of diamond-drill for blast holes for undercutting the 200- by 200-foot blocks.

Long hole auger drilling is being used at the Mather iron mine of Cleveland-Cliffs Company for undercutting the blocks to be caved. Holes are drilled in a radial pattern up to 60 feet which appears to be the economic length for blast hole drilling with rock drills. Time studies show drilling speed under favorable conditions of 4 to 8 feet a minute.

Recent years have seen shifts, in every possible location, from the high cost of top-slicing techniques which was in vogue two decades ago. Today, top slicing is giving way to such methods as modified sub-level stoping, block caving, and sub-level caving, the principal application of the top slicing method being to recover pillars, irregular portions of ore bodies, and small off-shoots from a major ore body. This change in methods is attributed to the rising cost of labor and timber. Consequently, elimination of the top slicing method has resulted in higher tonnage output per man and use of lower timber consumption.

Roof bolting or rock bolting as a means of supporting ground showed remarkable advances during the year with corresponding savings in the cost of timbering. Roof bolting has spread from exclusive use in drifts and crosscuts to open stopes, filled and shrinkage stopes. The U. S. Bureau of Mines reported 700 mines which have substituted roof bolts for timber.

Crushing plants are being installed underground at Copperhill, Tennessee, and at an Eagle-Picher mine near Galena, Illinois. Such underground installations yield a product easier to transport and reduce the high cost of surface crushing plants and size of storage bins.

Diesel-operated units with various types of exhaust gas conditioning scrubbers are used more extensively for underground haulage at mines with good ventilation conditions. The use of Diesel shuttle cars is replacing cable traction as Diesel has maneuverability advantages. The Joy Manufacturing Company now makes an 18- to 25-ton Diesel-electric shuttle car and these trackless units are being used in the large open-stope mines.

Belt conveyors for ore transport are replacing train haulage on levels and in inclined slopes. The construction of elaborate ore chutes, the switching of cars, and delays in building up a train are eliminated by a belt conveyor system. Conveyor-belt transportation is to be used in place of skip haulage at the Steep Rock iron mine in Canada and the White Pine copper mine in Michigan.

Underground haulage by trucks is also replacing track haulage. At the Baultsch mine, Galena, Illinois, in 1952, approximately 300,000 tons of lead-zinc ore were hauled by truck from the underground working faces of the property. The haul includes 2,700 feet of 10° inclined slope with the haul ranging from 1.0 to 1.25 miles from the working places. The reported operating cost was 24 cents a ton, 50 percent of which was for labor. The Eagle-Picher Company recently has begun production from another mine in the same district, with ore transported by a similar truck incline. The ore first passes through a crusher underground before being loaded into trucks for haulage to the mill which is some miles distant. A

number of 18-ton semi-trailers are now in use and even larger ones are on the drawing boards.

The North Friends State American Zinc Company of Tennessee employs Dumptor trucks to transport 50 tons of ore daily to the surface through a 1,100-foot 11.5° incline. In this operation, Diesel-powered loaders and trucks equipped with exhaust-gas conditioning scrubbers are regarded as necessities.

The Tennessee Coal, Iron, and Railroad Company, has extended its trackless iron ore mining operation at Birmingham, Alabama with a substantial increase in tons per man shift by using Joy rock loaders, jumbo mounted drills, and Diesel shuttle cars.

## ADVANCES IN ORE TREATMENT METHODS

Outstanding in the ore dressing field have been the new developments for large-scale treatment of Iron ores and taconites. The flowsheets of the new plants include heavy media machines, magnetic roasting, froth flotation, jigging, spiral concentration, and heavy density cyclone treatment. After many years of experimentation and testing taconites in a pilot plant of 1,000 tons daily capacity, the Reserve Mining Company has under construction a plant with 3,750,000 tons annual capacity at Babbitt, Beaver Bay, Minnesota. This plant will eventually be enlarged to produce 10,000,000 tons of iron concentrate annually. The Erie Mining Company is operating a pilot plant of 600 tons daily capacity at Aurora, Minnesota, and has a projected plant to produce 10,500,000 tons of concentrates annually. This plant will have to treat about 90,000 tons of crude ore daily thus making it the world's largest ore concentrator.

Other companies with projects to concentrate taconite are the Oliver Iron Mining Division at Mountain Iron, Minnesota, and the Humboldt Mining Company at Humboldt and Republic on Michigan's Marquette Range.

The estimated reserves of usable taconite ore are stated to be 5,000,000,000 tons or enough to produce 1,700,000,000 tons of concentrates with 64 percent iron content. Details on taconite developments are given in the Supplement of the Federal Reserve Bank of Minneapolis for February 1953.

The treatment of low-grade ores by Heavy Media Separation in the Lake Superior district has increased from an annual output of 5,000,000 tons in 1951 to an estimated 8,700,000 in 1953. The drum-type separators outnumber all others by 2 to 1. In general, the crushed ore, plus-8-mesh, goes to HMS and the fines to classifiers before jigging, spiral concentration, and heavy density cyclone treatment. New Iron Range plants using drums and heavy density cyclone machines were enumerated in the April 1953 issue of *Mining World*.

Other companies using HMS include the new St. Joseph Lead Company's 2,000-ton-per-day plant at Hayden Creek, Missouri, which uses HMS for roughing out waste from its lead ore, and the Westmoreland Manganese Corporation in Arkansas, which employs it to concentrate low-grade manganese ore. Elsewhere, the process is successfully being used in the concentration of nonmetallic minerals, such as gypsum, dolomite, potash, diamondiferous gravels, fluorapatite, and coal.

In gravity concentration, the use of jigs and tables is on the increase, particu-



Early among nonmetallic minerals and sulphide ores not amenable to flotation. The Humphreys spiral continues in great demand for these same minerals and to rough-out waste from sulphide ores before fine grinding and flotation. New installations of these spirals in 1952 include several plants for iron ore, barite, chromite, tungsten ore, and heavy mineral sands containing zircon, rutile, ilmenite, etc.

In the field of flotation great interest is being taken in new mills designed for the Chuquibambilla copper mine in Chile, the White Pine copper mine in Michigan, the Barvue zinc mine in Canada and the Humboldt iron mine in Michigan. Each of these will have plants to treat thousands of tons daily by flotation. At Utah Copper, Ducktown, Tennessee and other mills, changes are being made in the flotation machines and processes to improve recoveries.

Research in fine grinding during the year has indicated that costs can be reduced by the use of larger diameter, higher speed mills. White Pine plans to install 8- by 22-foot tube mills and 12.6- by 13-foot ball mills, the largest to date. Bunker Hill & Sullivan Mining and Concentrating Company has installed a 9.5- by 12-foot peripheral discharge rod mill manufactured by Allis-Chalmers, and the Reserve Mining Company is planning to use the same type of rod mill. Oliver Iron Mining Division is to use 10- by 12-foot open-end rod mills and 10- by 14-foot ball mills, while at the Greater Butte project 9- by 12-foot rod mills will be used to replace rolls, screens, and fine crushers.

This annual review would not be complete without mention of the *FluoSolid* roaster for treating sulphide concentrates preliminary to sintering or leaching. *FluoSolids* is now used to roast pyritic ores for sulphuric acid manufacture. The close control of temperature, sulphate formation, and gas composition are obvious advantages. Of particular interest are the pilot plant results in the sulphate-roasting of copper sulphide concentrates followed by leaching and the recovery of copper by electrolysis. Tests are reported to have yielded a 97 percent extraction, and plans for a commercial plant in Japan are being prepared.

The announcement that Kennecott Copper Corporation is building a new research laboratory on the University of Utah campus at Salt Lake City, Utah at a cost of \$1,250,000 and will employ 50 technicians is of particular interest. This is welcome news as research is the father of invention and such a laboratory will help solve a variety of problems associated with mining, milling, smelting, and metal refining as is already being done at the several experimental stations of the U. S. Bureau of Mines.

### MINERAL POLICIES

The foreign mineral policies of the United States Department of State have caused much discussion and argument in the mining industry and among outsiders. It is said that no effective protection is available to the domestic mining industry against dumping of materials from low-wage countries on our metal markets. Contrariwise, no safeguard of any consequence has become available to the consumer against shortages of materials in times of heavy demand or high prices.

Unless the mining companies of this country are permitted to develop and operate on a business-like basis for future production and mutual protection, shortages and high foreign prices for the prin-

cipal metals will become chronic and the domestic producer will pay.

The Paley Report of the President's Materials Policy Commission shows quite clearly that increasing shortages of metals and rising costs will eventually endanger the nation's security and living standards. It is the belief of the Paley Commission that the United States must reject self-sufficiency as a policy and, instead, go for the lowest cost sources of minerals wherever adequate supplies may be found. In other words, to maintain our industrial progress our nation must have metals and minerals in greater quantity and at lower cost than our miners can produce them at home, now that we have become the highest-wage country of the world.

The new Administration, according to President Eisenhower's Congressional message, promised to approach all matters pertaining to foreign minerals from the viewpoint of this nation's self-interest.

Any program to strengthen our mineral industry and place the mineral economy on a sound basis must find leadership and good example in the government. If the mining industry is to expand as it should under private enterprise, it must be protected from low price foreign minerals and metals. The most extreme exponents of free trade do not argue against tariffs to keep alive the mineral industries needed for national security.

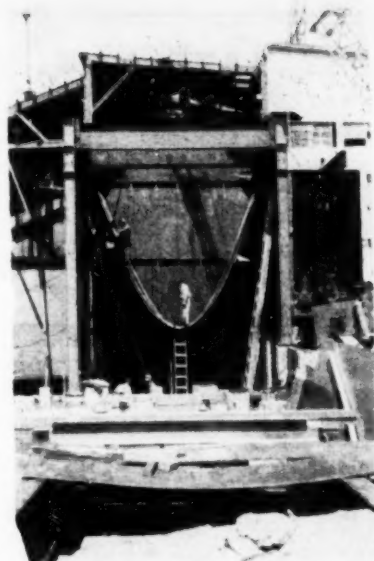
A definite national policy of stockpiling strategic and critical metals and minerals on a permanent basis, and provision of adequate funds for orderly purchases to maintain defense and emergency needs is vital. Such a policy would help to stabilize the market and protect consumers against such losses as were undergone by the metal fabricating industries because of the government price fixing and rationing of supplies during recent years. Domestic metal consumers should not be at the mercy of foreign prices in times of material shortages as has been the case with imported copper selling at 12 cents a pound higher than metal produced from our own mines, and the dumping of foreign metal on our markets. A recent example is the sale of the British government's stockpile of lead and zinc causing a serious drop in the United States market price for these metals.

In summary, the economy of the United States is threatened with shortages of the basic metals and minerals. Our great national protection is our industrial strength and its continued growth. National security requires a healthy domestic mining industry. We must have ample productive capacity—present and potential—and experienced men in government mineral agencies to permit them to function under the system of private enterprise.

### POLITICAL CONTROL OF MINERAL SUPPLY

Political control of mineral supplies is reaching the point where a nation has to be a producer of some mineral commodity to rate a seat at an international gathering or to hold its own as a trading nation. One small nation with a control of tin, antimony, or copper could well become a prime power by virtue of this control.

We now depend upon imports for nearly 100 percent of our tin, cobalt, and rare metals, 95 percent of our nickel and chromite, and 90 percent of our manganese. Sixty percent of our aluminum ore is derived from foreign sources. Lacking discovery and development of new sources for these metals in the United States, we will eventually become en-



Catenary ore bins were a feature of mill construction during 1952. This 1952 model holds 600 live tons of ore; it is part of Tungsten Mining Corporation's enlarged mill in North Carolina.

tirely dependent upon foreign supply.

The seriousness of the problem cannot be overrated and it is of a far more critical nature than is generally realized among the mining fraternity, the voter, and the man on the street, who have no conception as to the consequences of a curtailment of the raw supply of any one of our mineral commodities.

An endeavor is underway by the new Administration to work out cooperative agreements with the mineral producing nations. Unless United States dollars can be invested favorably to develop foreign sources of mineral supplies for export to this country, our industrial growth may soon be checked.

*Mining World's* Annual Yearbook Reviews in past years have included mention of our Defense agencies, stockpiling, taxes and tariffs etc. Because of the reorganization now in progress under the new administration, the extent of changes to be made is not yet known. We do know that the National Security and Resources Board has been abolished and that the Defense Materials Procurement Agency will be dissolved on July 1st. In the article "Minerals Consolidation" published in the March issue of *Mining World*, suggestions were made for the reorganization of agencies under the Department of Interior. This department embraces the U. S. Bureau of Mines with its technical staffs, and regional specialists. This capable organization should be fully integrated into any new reorganization plan dealing with mineral supply and resources. Most important is to appoint a competent administrator, one who is well acquainted with both domestic and foreign sources of mineral supply and the political situations, to supervise and unite all government agencies dealing in mineral supply and resources.

### ACKNOWLEDGEMENTS

Thanks are due to various members of the U. S. Bureau of Mines staff for their suggestions, particularly to Lester Morrell and Fred D. Wright.

# METALS AND MINERALS REVIEW

## ANTIMONY



By JAMES P. BRADLEY  
Vice President  
Bradley Mining Company  
San Francisco, California

Based on preliminary data, United States consumption of primary antimony in 1952 amounted to approximately 15,000 tons (compared with 17,519 tons in 1951) and exceeded total supply (domestic mine production plus imports) by about 1,000 tons as indicated in the table.

United States self-sufficiency in primary antimony declined to less than one percent by the last quarter of 1952, when domestic mine production was at the rate of only 100 tons annually (the lowest rate of production since 1931). The almost complete shutdown of domestic mine production during 1952 was the result of the depressed market caused by heavy liquidations of foreign antimony inventories. The Yellow Pine mine and smelter at Stibnite, Idaho, supplier of over 90 per cent of domestic output for many years, discontinued production during the summer of 1952. DMEA exploration projects were continued at this prop-

United States Primary Antimony  
Supply and Demand in 1952<sup>1</sup>

	Short Tons
Domestic mine production .....	1,947
Net imports .....	12,731
Total supply .....	14,678
Decline in industrial inventories .....	1,014 <sup>2</sup>
Apparent consumption .....	15,692

1. Short tons contained antimony.

2. Industrial stocks (including ore and concentrate, metal, oxide, sulfide, residues and slags) totalled 8,644 tons on Jan. 1, reached a peak of 9,536 tons at the end of Feb. and dropped to 7,630 tons on Dec. 31, 1952.

erty, but plans for resumption of mine or smelter production are entirely dependent upon the antimony market. The Bradley Mining Co. is tentatively planning to reopen the Stibnite smelter in the spring or summer of 1953 on the basis of 25 percent of its capacity for the treatment of accumulated in-process materials. Custom ores may also be purchased to augment this production if market conditions are favorable.

During 1952, there was also a sharp curtailment of antimony mine production in other Free World countries (notably Bolivia, Mexico, and Union of South Africa) and by the end of the year it became apparent that Free World mine production of antimony was well below Free World consumption, with the result that an important percentage of primary antimony supplies came from declining inventories.

Imports of primary antimony (in the form of ore and concentrate, metal, oxide and sulfide) were received in the United States from 15 countries, during 1952, including Belgium-Luxembourg, Bolivia, Canada, Czechoslovakia, France, Greece, Italy, Mexico Netherlands, Peru, Turkey, Union of South Africa, United Kingdom, West Germany and Yugoslavia. Assuming that Belgian smelters were supplied by Bolivian ore and United Kingdom smelters by South African ore, the source of 85 percent of 1952 imports can be attributed to three countries: Bolivia, Mexico, and Union of South Africa (in the order of importance).

The price of antimony metal fell from 50 cents per pound at the first of the year to approximately 30 cents by late 1952, while antimony oxide dropped from 44.5 cents per pound to 30 @ 36 cents. Bolivian chemical grade antimony ore quotations declined from \$6.75 @ \$7.00 per short ton unit in early

1952 to \$3.00 @ \$3.30 in September, but recovered to \$3.50 @ \$3.75 by the end of the year.

Although completion of the United States stockpile objective on antimony has been announced the stockpile according to industry estimates contains only 20,000 tons of primary antimony or enough to last just six months at the World War II peak rate of consumption. A six months' stockpile appears dangerously inadequate in view of our current dependence on foreign sources for over 99 percent of primary antimony supplies—particularly when it is considered that two of our main sources (Bolivia and South Africa) are very far off and may prove to be un dependable in the event of another national emergency.

The outlook is not favorable for antimony production in Bolivia, due to the worsening political and economic troubles of that country. Bolivia has been the chief source of antimony supply for the United States in recent years and is also a large supplier of Europe. Any interruption of Bolivian antimony production would seriously affect the Free World smelter output, as many antimony smelters in the United States and in Europe have geared their operations to high-grade Bolivian ore. It is therefore fortunate that there are two antimony smelters of large capacity in this country (at Stibnite, Idaho and Laredo, Texas) which can accept lower grade ores. These two plants would be hard pressed to make up the deficiency in supply in the event that Bolivian mine output substantially falls off.

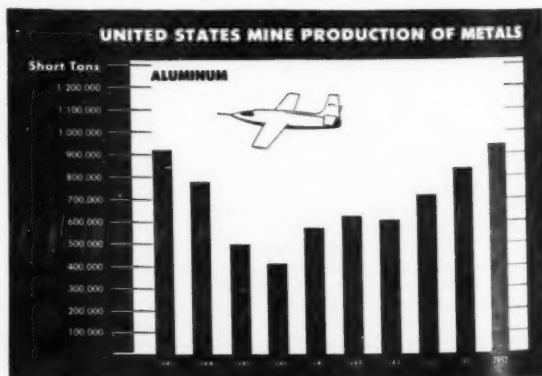
## ALUMINUM



By KEEN JOHNSON  
Vice President  
Reynolds Metals Company  
Louisville, Kentucky

What has happened in the aluminum industry proves that private enterprise can still meet the responsibilities of basic industry to the community, in time of war as well as in peace. No other basic material industry has shown such growth in productive capacity. In 1939 this country's capacity was 175,000 tons. By the end of 1953, it will be nine times as big—1,551,000 tons. Basic production in 1952 was 938,000 tons, almost six times as much as in 1939 (163,000 tons) and 2½ times as much as the first postwar year—1946 (410,000 tons).

The principal part of this expansion in output and capacity has taken place since the Korean war began. Private financing is supplying 100 percent of the funds being used for this post-Korean expansion of 833,000 tons. The private producing companies have either borrowed, sold stock, or used their saved up



## Expansion of United States Aluminum Producing Capacity Since Korea

Company	Capacity Tons	Total Cost Dollars
Aluminum Company of America	205,000	\$250,000,000
Reynolds Metals Company	184,000	185,000,000
Kaiser Aluminum & Chemical Corp.	230,000	190,000,000
Anaconda Aluminum Company	50,000	45,000,000
Olin Industries	110,000	123,000,000
Harvey Machine Company	54,000	65,000,000
	833,000	\$858,000,000 <sup>1</sup>

<sup>1</sup> All of these funds are being obtained from private sources, loans constituting less than 10 per cent of this total are Government guaranteed.

earnings to get together the \$858,000,000 needed to build these new plants.

In 1952, Reynolds Metals Company began shipments of bauxite from Jamaica, where the company has extensive reserves. Kaiser Aluminum Company also has bauxite in Jamaica, as does Aluminum Company of Canada.

Another source of bauxite is British Guiana, where Reynolds Metals Company acquired all of the assets of Berbice Company, Ltd., British Guiana subsidiary of American Cyanamid Company.

## Primary Aluminum Plant Capacities in the United States Measured in Millions of Pounds<sup>1</sup>

Company and Plant Location	In Operation December 1952	To Be Completed in 1953 and 1954	Total
<b>Aluminum Company of America</b>			
Regular Operation			
Alcoa, Tenn.	290.6		290.6
Vancouver, Wash.	152.2		152.2
Massena, N. Y.	115.0		115.0
Point Comfort, Tex.	184.0		184.0
Badin, N. C.	67.7		67.7
Wenatchee, Wash.		170.0 <sup>2</sup>	170.0
Rockdale, Tex.		170.0 <sup>2</sup>	170.0
Total—Regular	809.5	340.0	1,149.5
Temporary Operations <sup>3</sup>			
Badin, N. C.	19.0		19.0
Massena, N. Y.	29.0		29.0
St. Lawrence, N. Y.	110.0		110.0
Total Temporary	158.0		158.0
Total All Plants	967.5	340.0	1,307.5
<b>Reynolds Metals Company</b>			
Jones Mills, Ark.	194.0		194.0
Troutdale, Ore.	165.0		165.0
Listerhill, Ala.	100.0		100.0
Longview, Wash.	100.0		100.0
Corpus Christi, Tex.	160.0		160.0
Arkadelphia, Ark.		110.0	110.0
Total	719.0	110.0	829.0
<b>Kaiser Aluminum and Chemical Corporation</b>			
Mead, Wash.	350.0		350.0
Tacoma, Wash.	50.0	16.0	66.0
Chalmette, La.	200.0	200.0	400.0
Total	600.0	216.0	816.0
<b>Anaconda Aluminum Company</b>			
Columbia Falls, Mont.		100.0	100.0
<b>Olin Industries</b>			
Morgantown area in W. Va.		220.0	220.0
<b>Harvey Machine Company</b>			
The Dalles, Ore.		108.0	108.0
<b>Wheland Company</b>			
Tennessee Valley Area		100.0	100.0
Grand Totals	2,286.5	1,194.0	3,480.5
Total Regular Capacity (Excluding Temporary)	2,128.5	1,194.0	3,322.5

- Two types of capacity figures are frequently used: rated capacity and operating capacity. Some plants can and do exceed their rated capacity, depending primarily on their power supply and power equipment. For example, rated capacity of Reynolds plants by 1954 will be 810 million pounds. The 829 million pound capacity figure used in this tabulation is based on actual operating performance of plants already in operation plus rated capacity for plants under construction. If the new plants also exceed their rated capacity the operating figure should then be raised.
- Two potlines in operation in December 1952.
- Alcoa is operating 158.0 million pounds of capacity (not considered economical for lack of cheap power) under a special stockpile contract whereby the Government pays power costs in excess of 5 mills per KWH.

## BERYLLIUM



By D. H. HERSHBERGER  
Treasurer  
Brush Beryllium Company  
Cleveland, Ohio

The beryllium industry during 1952 consumed 270 tons of beryl more than in 1951, setting a new high for the third successive year; however, the new supply was 2,950 tons in excess of consumption and also established a new record. Although substantial stocks have been accumulated, there is no complacency over future supply because the sources of imports may not necessarily continue to be available.

A beryllium panel of the Minerals and Metals Advisory Board was formed in Washington to appraise the over-all beryllium situation and, among other things, it recommended the developing of sources of low-grade beryl. A little progress has been made in this direction, the most notable being work on two deposits of beryl disseminated in granite. These are light-colored granite intrusions in red granite and, uniquely, are not pegmatitic. Preliminary indications are that the potential tonnage in these deposits could prove extremely interesting.

After four years, Argentina again appeared in the supply column, but, unfortunately, the 500 metric tons came from old stores and did not represent new production. The Argentine regulations regarding beryl are not conducive to production at this time.

In June, Brazil authorized an export quota of 4,000 tons to December 31, 1952, but only 62 percent of that amount has been received by the United States.

French Morocco reached a new high in its supplies to the United States, largely due to the activity of the Mutual Security Agency in the Atlas Mountains.

Mozambique has become more prominent in the African scene, as has Southern Rhodesia where additional sources of production are constantly being discovered.

Probably something over one-half of the quantity imported from the Union of South Africa was produced in Southwest Africa and exported through the Union.

## United States Receipts of Beryl in short tons by Countries for 1951 and 1952<sup>1</sup>

Country of Origin	1951	1952 <sup>1</sup>
Argentina	0	549
Brazil	1,094	2,590
British East Africa	48	18
Finland	5	3
French Morocco	23	118
India	449	196
Japan	12	0
Korea	0	3
Mozambique	174	308
Portugal	98	105
Southern Rhodesia	691	930
Union of South Africa	1,722	1,156
United States	483	625
TOTAL	4,799	6,601

<sup>1</sup> Preliminary

Domestic production of hand-cobbed beryl was pushed to a new high with the activity in the New England states by a consuming company and the government's new purchase program, established October 7, 1952 and effective until June 30, 1953, or until 1,500 tons have been purchased.

Prices of beryl again increased during 1952, from \$38 to \$48 per short ton unit of contained BeO, C.I.F. New York. The top price in the General Services Administration's domestic purchase program is \$50 at the government depot provided the producer pays all costs of sampling and analysis.

Construction of a beryllium copper master alloy plant neared completion at the year-end, providing the country once again with a second source of this strategic material. Prompt deliveries of beryllium copper are now assured. This, coupled with the development of additional sources of beryl, will encourage the use of this alloy in its many important applications, commercial as well as military.



## COBALT



By C. R. WHITEMORE  
Chief Metallurgist  
Deloro Smelting & Refining Co., Ltd.  
Deloro, Ontario

The year 1952 has seen an improvement in the world supply position of cobalt and the International Materials Conference will not recommend distribution plans for the first quarter of 1953 but will keep the supply demand under review. The period of deficiency seems to have lessened and the questions are how closely world production and consumption will be related and what will be the net result on prices? British rearmament has slowed down to a certain extent and it is expected that armament expenditure by the United States will level off.

Rhokana Corporation Ltd., Nkana, Northern Rhodesia, placed its new electrolytic cobalt plant in operation in the early part of the year, but the usual difficulties of a new process retarded production until August. The process starts with a cobalt concentrate which is subjected to a sulphatizing roast to render the cobalt water soluble and the copper and iron relatively insoluble. The calcine is hot water leached and purified from copper and iron. The cobalt is then precipitated by milk of lime, the cobalt hydrate filtered and redissolved in spent electrolyte. The electrolyte feed is maintained at about 25 grams per litre of cobalt which is deposited at a current density of 14.5 amperes per square foot with a cell voltage of 3.0 and temperature 55° C. Cathode cobalt is 99.8 percent pure.

Kilembe Mines, Ltd., a subsidiary of Frobisher Ltd. and Rio Tinto Company, reports that developments are proceeding satisfactorily. The ore contains 1.54 to 2.25 percent copper and 0.135 to 0.171 percent cobalt. Copper output will be a low-grade electrolytic copper, while the cobalt will be contained in a sludge which will be shipped for refining. Estimated cobalt output is now placed at 500 short tons per year.

Canadian cobalt production rose sharply during the year with four producers turning out better than 90,000 pounds of contained metal monthly during the latter part of 1952. The premium price of \$2.00 per pound in a 10.0 percent concentrate set by the Canadian Government in 1951 for 600,000 pounds of metal was an effective incentive. By the end of February 1953, the objective of 600,000 pounds will be completed and the price will then revert to \$1.40 per pound which may not fully encourage exploration. Production for 1952, excluding cobalt shipped for further processing, was 1,303,400 pounds, valued at \$2,806,000.

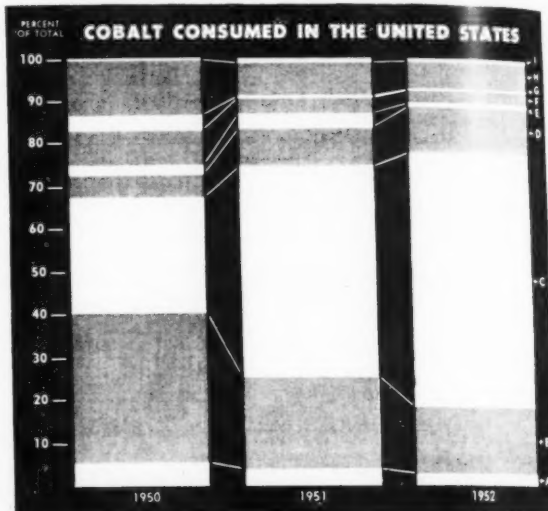
The Deloro Smelting and Refining Company Ltd., Deloro, Ontario continued its expansion and modernization program throughout the year. Production during the year increased from 30 to 45 tons of cobalt per month and by March 1953 will be 60 tons per month. The alloy and precision casting divisions increased their cobalt base alloys for ordnance and jet aircraft requirements of the Dominion Government. The Deloro plant has ample capacity for the treatment of Canadian cobalt ores and residues.

Sherritt-Gordon Mines Ltd. will construct a plant at Fort Saskatchewan during 1953 to recover nickel and cobalt from their Lynn Lake concentrate. The process involves an ammonia-oxidizing leach of the raw concentrate under temperature and pressure with subsequent treatment of the leach liquors, also under pressure, for the recovery of nickel and cobalt as metal powder which may then be sintered into pellets. The sulphur

recovery in the form of ammonium sulphate will be about 75 percent Cobalt production is estimated at 150 tons per year.

Cobalt Chemicals Ltd., at Cobalt, Ontario was placed under the operating direction of Quebec Metallurgical Industries, a Ventures-Frobisher subsidiary. The re-designed plant will have a capacity of 20 to 25 tons of concentrate daily.

The Calera Mining Company, a subsidiary of the Howe Sound Company, started up its cobalt refinery at Coaldale, Utah in August. The plant was installed by Chemical Construction Corporation and uses the Chemico-Sherritt acid leach process. The plant will treat 35 tons of 20 percent cobalt concentrate to an annual output of 200 tons of pure cobalt metal.

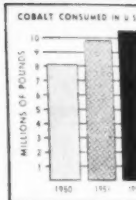


COBALT USES IN THE UNITED STATES

(A) High speed and other steels. (B) Permanent and soft magnetic alloys. (C) Cobalt-Chromium-tungsten-molybdenum alloys. (D) Alloy hard facing alloys and cemented carbides. (E) Other metallic uses. (F) Ground coat frit. (G) Pigments. (H) Salts and driers. (I) Other non-metallic uses.

PERCENTAGE USES BY YEARS

YEAR	A	B	C	D	E	F	G	H	I
1946	10.2	36.4	12.8	1.8	0.8	10.0	5.0	22.4	0.6
1950	5.8	35.2	27.0	6.0	1.8	9.0	3.8	13.0	0.4
1951	4.0	21.0	47.8	8.0	3.0	5.2	0.4	10.0	0.6
1952	17.5	13.4	20.6	16.5	9.5	5.5	6.0	5.4	5.6



## CHROME



By FAY I. BRISTOL  
President  
Oregon Mining Association  
Grants Pass, Oregon

Available supplies of chromite during 1952 were in excess of consumption, due to the steel strike. Imports still accounted for 98 percent of the available supplies, with approximately 4 percent being produced in the Western Hemisphere. We are still in the position of having to convoy our chrome at the first sign of open hostilities.

Turkey, which still supplies us with 50 percent of our metallurgical grade chromite is an area of potential unrest; Southern Rhodesia, the next largest supplier, is not much better situated. As this paper is being written, the new administration in Washington seems to be taking a firm stand on foreign policy, which may result in a show-down in the not too distant future. We may see more unrest generated by the Communists, which will affect very materially our supply of chrome. In this case, the United States may have to fall back on domestic production and the national stockpile for a substantial portion of its needs.

Montana deposits are to be brought into production during

World Production of Cobalt by Countries in 1950 and Estimated 1952 Production Measured in Short Tons.

Country	1950*	1952
Australia	11	11
Belgian Congo	5,675	7,370
Canada	313	952
French Morocco	430	940
Northern Rhodesia	737	1,250
Norway	—	30
United States	329	300
	7,495	10,853

\* U.S. Bureau of Mines, Minerals Yearbook, 1950



1953, and will go a long way toward helping out the supply of chemical and refractory grades.

The Government stockpile at Grants Pass, Oregon, for the purchase of metallurgical-grade chrome is surprising many observers in the grade of chrome being delivered. During 1952, nearly 20,000 tons were accepted at the Grants Pass depot. Production was less than anticipated but this was due primarily to the all-time record snow falls in the chrome country. Some of the major operators were plowing snow last July to enable them to get to their properties. It is anticipated that production for 1953 will increase 2½ to 3 times over the 1952 figure.

The numerous mills constructed to mill chromite have been slow in getting started; most of this has been due to inexperience and short finances. During the year, the limit on the production per mine was raised from 2,000 tons to 5,000 tons, but the overall limit on the amount of chrome ore that would be accepted was not raised correspondingly. This in effect cancelled out the advantages of the 5,000-ton limit per mine per year.

The Defense Materials Procurement Agency is still confronted with the problem of whether to go all out for domestic production during the next three or four years, or whether to continue limiting production of chromite. The decision will still have a tremendous effect on the amount of ore that will be developed as no experienced producer is going to spend his money with a program that may be completed in less than two years.

## COPPER



By **HOWARD L. WALDRON**  
District Manager, New York  
*Mining World and World Mining*

In 1952, interest in copper centered on price. In the United States, the price remained fixed at 24.50 cents per pound. Outside the United States, the price jumped in May by about 7 cents per pound—from about 27.5 cents to about 34.5 cents. But all year long, there were at least two prices—the low, fixed one in the United States and the higher, fluctuating one in foreign markets.

At either price, and in any place, the supply was not great enough to meet demand. However, in 1952, mainly as a result of the enterprise of private mining companies, the Free World's supply of copper was increasing.

During the year, rising production of copper was tied to these events: At Butte, Montana, in early 1952, Anaconda Copper Mining Company's Greater Butte Project began regular production. By the end of the year, it was producing about 10,000 tons of 1.0 percent copper ore daily.

However, the world's big production event came late in 1952 when Chile Exploration Company (largely owned by Anaconda) started its new sulphide mining, milling, and smelting plant at Chuquicamata, Chile.

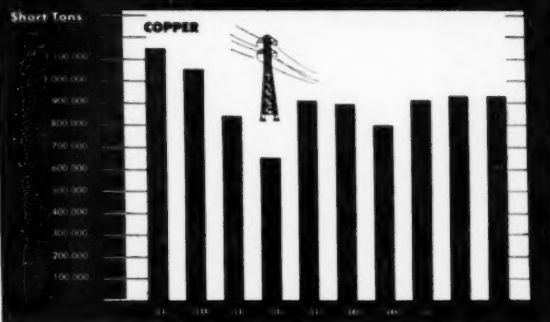
This sulphide plant at Chuquicamata supplements the older, oxide plant. Production from oxide ores had sagged to about 180,000 tons of copper yearly (about two-thirds of original capacity). The sulphide plant was originally to have consisted of seven 3,000-ton-per-day ore-crushing units (total 21,000 tons of ore daily) which would sustain Chuquicamata's copper output at about 250,000 tons per year. Those seven units were all nearing completion by the end of 1952. In the meantime, Chilex has increased its original plans, and is adding three more crushing units (for a total sulphide ore capacity of 30,000 tons daily).

The two prices of copper were largely determined by two Governments—that of the United States (a net importer), and that of Chile (a net exporter).

The United States Government, through its Office of Price Stabilization, set a ceiling price of 24.50 cents per pound on domestic production.

The Government of Chile represented the export side of this price story. At the close of 1951, under a 1951 agreement, the total output of Chilean copper was split two ways: 80 percent went to the U. S. at a price of 27.5 cents per pound; the remaining 20 percent was held for the account of the Chilean Government, which in turn sold part of it on the foreign market

## UNITED STATES MINE PRODUCTION OF METALS



at prices up to 54.5 cents per pound. Early in 1952, the foreign market softened, and buyers of 54.50-cent copper disappeared.

In May, Chile renounced the 1951 agreement, and then from a series of tense negotiations came a new agreement which affected interested parties as follows: In recent years, about 40 percent of the total U. S. supply of primary copper has come from Chilean mines, and about 60 percent has come from U. S. mines. The U. S. Government, acting through its Office of Defense Mobilization and the National Production Authority, decreed that U. S. fabricators should buy 24.50 cents domestic copper for 60 percent of their needs, and should buy higher-priced foreign copper for the remaining 40 percent. In turn, the U. S. Government allowed price relief of 80 percent of the added cost (over 27.50 cents) of the foreign copper. The Bank of Chile fixed the price of its copper at 35.50 cents. The Chilean producer . . . continued to produce.

The Free World's capacity to produce copper ore will increase rapidly during the next four or five years. In terms of increased available short tons of primary copper, this is about what is now slated to happen:

By the end of 1953, the Free World's annual rate of copper production should be up about 250,000 tons from the 1952 rate—to a new total of about 2,610,000 tons. This will include a year of increased production from Chuquicamata; initial output from Mt. Isa's new plant in Australia; initial output from Urawira in Tanganyika; a near-capacity year at Anaconda's Greater Butte Project in Montana; and initial production from Anaconda's Yerington mine in Nevada.

By the end of 1954, capacity to produce should be up by about 400,000 tons over 1952—to a total of about 2,760,000 tons. The year's new capacity will include initial production from White Pine Copper Company in Michigan; from Kennecott's Deep Ruth mine in Nevada; from ASARCO's Silver Bell in Arizona; and replacement of Castle Dome's declining production by increasing new production from Copper Cities in Arizona.

By the end of 1955, capacity will be up by about 550,000 tons over 1952. Capacity to produce will continue to increase until 1957, which San Manuel Copper Company goes into production with its new block-caving mine near Tiger, Arizona.

## FLUORSPAR

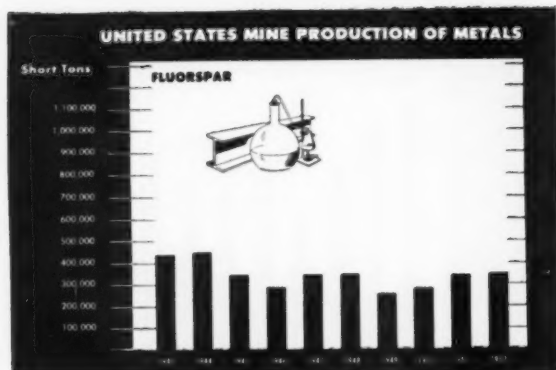


By **C. O. ANDERSON**  
Vice President  
Ozark-Mahoning Company  
Tulsa, Oklahoma

A year ago I reported\* that for a number of years shipments of fluorspar from domestic mines had not been keeping pace with the increasing consumption. In 1951, the domestic production rose to 341,300 tons, and, on the basis of incomplete figures, the domestic production during 1952 will be about 20,000 less.

Total consumption of all grades of fluorspar in the United

\* See Mr. Anderson's survey in the 1952 *Mining World Yearbook*.



States during 1951 was 497,012 tons; the corresponding figure for 1952 will be about 515,000 tons.

Imports in 1951 were at the all-time high figure of 181,275 tons, but 1952 witnessed the astonishing fact that the imports were approximately 350,000 tons, substantially twice the previous record figure.

The principal countries sending imports to the United States are in decreasing order of tonnage for the first eleven months of 1952, Mexico 161,073 tons, West Germany 55,191, Spain 57,835, Italy 16,692 tons, and Canada including Newfoundland 16,175 tons. The impact of this tremendous flood of imports is difficult to evaluate and is very disturbing to many domestic producers, particularly when imports are observed to be nearly 70 percent of the total consumption.

The supply situation with respect to all grades of fluorspar changed sharply during the year, and in December the demands appeared to be well below the available supplies. The domestic productive capacity for acid-grade fluorspar during 1952 became substantially equal to anticipated demands for 1953.

With reference to acid-grade fluorspar, the supply situation was affected by the delays which have occurred in the expansion programs relating to the aluminum and to the atomic energy industries and to the fact that General Services Administration has apparently completed its contracting in behalf of the Government stockpile.

The prices applying to metallurgical and ceramic grades continued throughout the year to be under OPS ceilings. Prices for acid grade remained rather constant throughout the year, but did enjoy the benefit derived from the decontrol order of August 1951, which had resulted in an increase of about 20 percent.

Demands for all grades of fluorspar continue to increase moderately, but the publicity given to fluorspar throughout the world during the past two years has brought into the supply and demand picture factors true evaluation of which will require much time.

The western states, particularly Colorado, Nevada, and Idaho, moved forward in bringing in new production during 1952, but enthusiasm for such projects is tempered by the availability of large quantities of fluorspar becoming rapidly available in Mexico, and to a lesser extent in the several mentioned European countries. In spite of all of the problems confronting the fluorspar industry, most of the new domestic production when it does come must be in the western states because the Illinois-Kentucky district can scarcely exceed the rate at which it has been operating in recent years.

## GOLD



By **GEORGE O. ARGALL, JR.**  
Editor  
*Mining World and World Mining*

Developments in 1952 proved that there is nothing wrong with the world gold mining industry that a realistic price won't cure. Spurred by higher returns for their product as governments

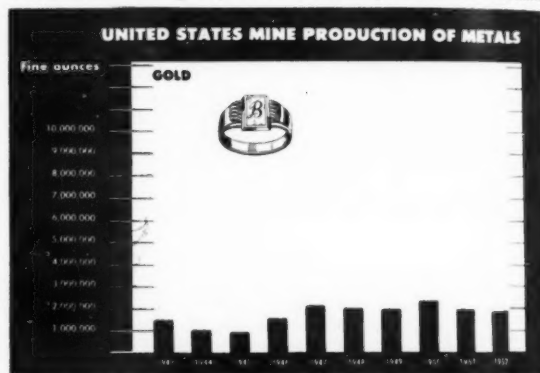
permitted more and more gold to be sold at premium prices on the "Free Market" or encouraged production by other forms of assistance Free World gold production increased by four percent from 24,000,000 ounces in 1951 to about 24,600,000 ounces in 1952. Not surprising is the fact that production gains were made primarily in those countries whose governments recognized and believed in the importance of gold.

In many gold mining countries, management skill and operational technology were called upon as never before to maintain or increase production in the face of rising costs and lessening ore grades. Toward the year's end the cost of many supplies appeared to have dropped slightly. In several countries production was maintained by high grading which can only bring eventual loss of much gold in low-grade zones which technology dictates should be mined with the high grades, as well as preventing economic loss to the country in the wide purchasing power base which will never be realized from this gold.

In order of importance, the first 10 gold producing countries in 1952 were: Union of South Africa, Canada, United States (includes Alaska), Australia, Gold Coast, Southern Rhodesia, Philippine Islands, Mexico, Colombia, and Belgian Congo. In 1952 in comparison to 1951, the Philippines replaced Colombia in seventh place; Mexico moved to eighth from ninth, while Colombia dropped to ninth. The greatest decrease in production was in the United States—225,376 ounces or 12 percent.

While South Africa's production gained 302,231 ounces it was equivalent to only 2.6 percent. Most of this increase was from the two Orange Free State mines in production in 1952 whose combined output was 224,412 fine ounces. This increased output was forecast in the 1951 Mining Yearbook.

A similar forecast for another increase in 1953 is in order as President Steyn Gold Mining Co., Ltd. will be milling 50,000 tons of ore monthly by year's end, and Western Holdings Ltd. will also be milling 50,000 tons monthly. Both the Fredries



North, and South Lease Area Ltd.'s 50,000-ton-each plants will be in operation in 1953. Production from the Orange Free State in 1953 is forecast at 322,000 ounces, 1,625,000 in 1954, and 2,420,000 in 1955. Witwatersrand output actually declined in 1952 to 11,075,754 ounces from 11,487,105 in 1951. Miscellaneous production from other S. African mines was 515,461 ounces in 1952.

The Philippines made the great gain—19 percentagewise—and second ouncewise with 75,804. However six out of the 10 largest producers lost money. Other important increases were made by Australia, 64,464 ounces; Mexico, 55,579; Japan, 51,100; Canada, 26,819; and the Belgian Congo, 14,000. Gains were also registered by Southern Rhodesia, British Guiana, and the Gold Coast. Once again complete production statistics for the countries are included with their report in a separate section of this Mining Yearbook.

In many parts of the world, gold mining assumed a byproduct role at an increasing rate during 1952. In the United States only the great Homestake mine in South Dakota, the Cripple Creek district in Colorado, California's placers and Mother Lode mines, and Alaska's production can be considered as true gold mines. Even the famous mines of the Witwatersrand may become uranium mines with byproduct gold at some not too distant date. With three uranium plants being built for six mines in the great new Orange Free state gold field, and seven Rand plants, the importance of gold in South Africa has already been considered by some as secondary in this uranium-fueled Atomic Age.

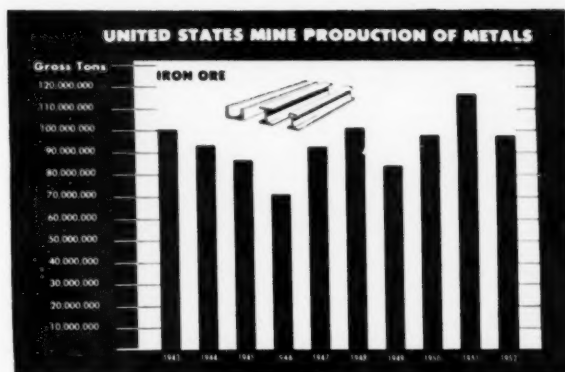
Strong and continuing proposals were made during 1952 for the revaluation of gold tied to a new exchange clearing union. This would mean that the major countries would simultaneously raise the gold price in terms of their currencies. The resultant increment would then be used to carry out the purpose for which the International Monetary Fund was established—to back the clearing union and to support weak currencies.

During 1952, the 10 leading governments in purchases of gold were: Canada, Italy, Egypt, Portugal, Indonesia, Sweden, United States, Argentina, Belgium, and Cuba. However, the greatest gold buyer was the citizen of foreign countries whose total purchases amounted to \$694,000,000 in contrast to Canada's \$262,000,000.

In late 1952, the leading gold owning countries in order were: United States, United Kingdom, Switzerland, Canada, Belgium, France, Venezuela, and Brazil. Switzerland lost gold during the year. In December 1952 the United States started losing gold, and, since December 10th, the total loss has been \$675,000,000—the greatest amount at the fastest rate in history. The reason is simple. Foreign countries want gold—gold to bolster public confidence of currency within the country by building gold reserves.

In the United States political developments relating to gold were more important than technological. The Republican party adopted a plank for gold as follows: "... to use our influence for a world economy, of such stability as will permit the realization of our aim of a dollar on a fully convertible gold basis." It was approved by the then presidential nominee, Dwight D. Eisenhower. It is to be hoped that he, as President, will do all possible to bring about dollar convertibility based on a realistic gold price. The United States Gold Committee, Inc. was formed early in the year and grew to more than 200 members. It is a non-profit, educational organization for the purpose of gathering, coordinating, and distributing information and data pertinent to the gold mining industry of the United States.

For 1953 the United States citizen can hope for no more inherent fundamental right than that to buy, own, and sell gold.



5,200,000 tons during the year, 46 percent to Canada, and the remainder to Japan.

About 25 percent of the ore produced in the Lake Superior District resulted from at least one of various methods of concentration, and many new beneficiating plants came into operation or were building during 1952. Important among these were the M. A. Hanna Company's completion of pilot plant tests on ores from the Menominee range in Michigan, and the Humboldt Mining Company's development of the Humboldt mine and construction of a flotation plant, with an annual capacity of 200,000 tons of finished product, on Michigan's Marquette range. Humboldt is scheduled for production in 1954.

Of equal importance was the continued development of plants to treat taconite. Most prominent among the companies active in taconite are the Erie Mining Company, the Oliver Iron Mining Division of United States Steel Company, and the Reserve Mining Company. All three of these firms are constructing plants to treat the magnetic taconites of the eastern Mesabi iron range in Minnesota.

In the West, Kaiser Steel Corporation's Eagle Mountain mine in California increased production to meet the demands of the company's new blast furnaces at Fontana. In the Northeastern section, Jones and Laughlin Steel Corporation increased the capacity of its Benson mine in New York and added a martite concentrator. Bethlehem Steel Corporation started development at the Grace mine near Morgantown, Pennsylvania.

Among the countries outside the United States that were active in iron ore developments, Canada and Venezuela were most prominent. In Canada, Steep Rock Iron Mines, Ltd., continued developing the Hogarth pit and Errington underground mine in Ontario. Both of these should reach production in 1953. Progress at Bethlehem's magnetic ore-body near Marmora in southeastern Ontario indicated that the mine would be producing by late 1954 or early 1955. The Iron Ore Company of Canada expects to be making shipments early in 1954 from its Labrador deposits over the 350-mile access railroad, now under construction. Iron Mines Company of Venezuela (Bethlehem) tripled output in 1952 over 1951 and the Orinoco Mining Company (U. S. Steel) began dredging the Orinoco River and building a 100-mile access railroad in preparation for ore shipments, to begin in 1954, from the Cerro Bolivar, Venezuela deposits.

## IRON



By R. L. BURNS  
Field Editor  
Mining World and World Mining

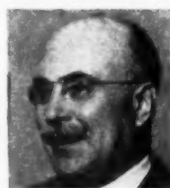
The trend toward increased iron ore production during the last few years was sharply reversed in 1952 because of strike-suspended operations during the months of June and July. Total domestic production dropped 16 percent from 1951 figures to an estimated total of 96,700,000 long tons as compared with 116,500,000 tons mined in the previous year. The full effect of the strike was partially attenuated, however, by record breaking production in the last months of the shipping season and by the addition of eleven new carriers to the Great Lakes shipping fleet. As a result, the post-season all-rail shipments thought necessary to carry the furnaces through the winter months were not needed.

With the removal of limits formerly placed on production by available shipping facilities, and if full steel production is maintained, furnace demands now estimated to be 135,000,000 tons will result in a record iron ore output in 1953.

The Lake Superior District, origin of four-fifths of domestic output, produced 77,300,000 tons during the year. The Western states, bettering their relative position among producing districts through early settlement of labor-management problems and increased capacity, produced 7,800,000 tons. The South-eastern states produced 7,500,000 tons, and the Northeastern states 4,400,000 tons. Statewise, Minnesota again led the nation by producing 66 percent of the total domestic output. Michigan followed with 12 percent and Alabama produced 7 percent. Fifteen other states reported lesser amounts of iron ore production for 1952. By-product ore from the treatment of pyrite accounted for 600,000 tons and manganese iron ore used for blending, produced in Arkansas, Minnesota, Michigan, Montana, and New Mexico, totaled about 850,000 tons (not included in any of the production figures above.)

Foreign producers supplied domestic furnaces with 9,760,000 long tons, a decrease from the previous year due to the lack of unloading facilities during the strike and to unacceptable price increases on ore from several sources. Of the total, 22 percent came from Sweden; 19 percent each from Canada, Chile, and Venezuela; 10 percent from Brazil; 6 percent from Liberia; and 5 percent from eleven other sources. Exports from the United States, included above in total production, grossed an estimated

## LEAD



By O. W. BILHARZ  
President  
Bilharz Mining Co., Inc.  
Baxter Springs, Kansas

In 1952, the United States, Mexico, Australia, and Canada were again the dominant producers of lead, accounting for more than sixty percent of total world output.

Of the 1,200 odd lead producing domestic mines, the 25 leaders produced 66 percent and the top 55, 80 percent of the primary output.

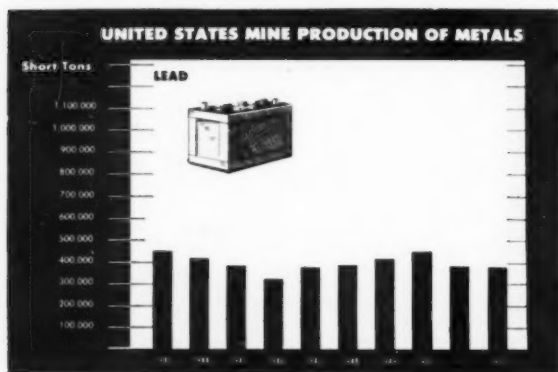


Five companies, St. Joseph Lead Company, United States Smelting and Refining Company, American Smelting and Refining Company, Bunker Hill and Sullivan and Eagle Picher Company were responsible for some 60 percent of total domestic mine production.

Four companies, American Smelting and Refining Company, St. Joseph Lead Company, United States Smelting and Refining Company, and Bunker Hill and Sullivan Mining and Concentrating Company controlled over 98 percent of the primary refined lead capacity.

Domestic mine production and scrap recovery was about 58,000 tons below 1951, but the added large gains in net imports brought about a 1952 supply of 1,380,000 tons which was available for the estimated consumption of 1,175,000 tons. The preliminary 1952 domestic mine production of 354,409 tons (Lead Industry Association) compares with 350,724 for 1951. Southeast Missouri again leads the districts reporting: Southeast Missouri, 125,053 tons; Idaho-Mont.-Wash., 86,805; Utah-Nevada-Calif., 68,639; Ariz.-Colo.-New Mex., 43,816; Tri-State District, 20,964; others, 9,132.

Lead at the beginning of 1952 was still in apparent short supply and the sentiment in the industry consequently remained as it had most of 1951, bullish. The unforeseen and relatively quick change in the supply-demand situation early in the year from a seller's to a buyer's market resulted in prompt action



by the National Production Authority to decontrol lead. Steady decrease in consumption, due principally to the slump in the battery business resulting from NPA cutbacks in the automobile industry, together with continued steady production, caused a break in the lead price by the end of April, so that throughout May prices were pointed downward. Resumption of trading on the Commodity Exchange in May after suspension in July 1951; reimposition of the import duties on lead which were suspended in February; and action by DMPA in buying 30,000 tons of lead to be held for consumer's account rather than for stockpile, all had a bearing on halting the downward trend at a low of 15.00 cents New York on May 12. Consumers reentered the market in June with near-record purchases and the market recovered to 16.00 cents New York and with consumption good it held at this figure until early October. Free trading on the London Metal Exchange was resumed October 1, after the British Government freed lead from all controls. Serious breaks in the London market followed this action and adversely influenced the price in our domestic market which continued to decline on October 7 in sympathy with further weakness in the London market caused by declining consuming demand abroad. By October 22, the New York market chalked up a new low for the year of 13.50 cents. The market recovered slightly to 14.75 cents New York by year ending, but once more stood at 13.50 cents on February 2, 1953.

It is apparent that domestic lead production is capable of producing at a rate high enough to meet all domestic requirements, provided price incentives remain adequate. With consumption of lead remaining at 1952 levels and with the imposition of regulatory administration measures to prevent foreign dumping from upsetting domestic price structures as happened the past year, the outlook for lead in 1953 is good.

**Geographic Distribution of Lead Production  
in the United States in 1952**

Area	Tonnage
Southeast Missouri	125,053
Idaho-Montana-Wash.	86,805
Utah-Nevada-Calif.	68,639
Ariz.-Colo.-New Mex.	43,816
Tri-State District	20,964
Others	9,132

## MAGNESIUM



By **JAMES S. KIRKPATRICK**  
President  
The Magnesium Association  
New York, New York

Today magnesium is accepted as one of the common structural metals, listed with iron, steel, and aluminum. It is the lightest of structural metals—aluminum being 50 percent heavier and titanium 2½ times the weight of magnesium. This light weight combined with good strength and stability, accounts for the use of large quantities of magnesium in a wide variety of applications today.

With six government-owned magnesium plants producing in addition to Dow Chemical Company's privately owned plant at Freeport, Texas, approximately 100,000 tons of primary magnesium were produced in 1952. Between 45 and 50 percent of this was accounted for by consumption. The balance went to the military stockpile. Of magnesium used, exclusive of stockpile, about one-fourth was for civilian industry and three-fourths for military requirements.

In the spring of 1952, a government-owned four-high mill operated by Dow Chemical Company at Madison, Illinois, came into production. Sheet from this mill is available only for the United States Air Force and other military uses.

In August 1952, Brooks & Perkins, Inc. began production of rolled magnesium sheet and plate in their newly installed mill at Livonia, just outside Detroit, Michigan. Most of the sheet rolled on this mill is being used by Brooks and Perkins' fabricating plant. Since this company is one of the largest users of sheet magnesium in the U.S., this relieves the formerly tight situation. In addition to sheet, the Brooks and Perkins mill is also producing commercial hot rolled plate (¼ inch and thicker) for sale to commercial users.

No review of magnesium would be complete without mention of one more very basic factor: that is, the virtually unlimited availability of a good source of supply. Each cubic mile of sea water contains 12,000,000,000 pounds of magnesium. This ready availability is perhaps one important reason why the report of the President's Materials Policy Commission estimates a growth in magnesium use of 1,845 percent in 1975 as compared with 1950. This predicted expansion was many times as great as the predicted for any other material, the next higher being cobalt with a predicted increase of 344 percent in the same period of time. This increase would amount to approximately 1,100,000,000 pounds of magnesium in 1975, and that total of 1,000,000,000 pounds would use less than 1/10 of a cubic mile of sea water out of 320,000,000 cubic miles that are available.

**Estimated National Consumption of Magnesium in 1951  
By Fields of Application or Use\***

Use	Percent
Aircraft: engines, wheels, airframes, etc.	10
Aluminum Industry	20
Electrochemical Uses: underground anodes, fresh water anodes, sea water anodes, etc.	10
Ground Transportation: trucks & trailers, automotive, etc.	10
Machinery & Tools: portable tools, business machines, etc.	10
Chemical & Metallurgical Uses	10
Materials Handling: dockboards & skids, foundry equipment, concrete industry, etc.	10
Electrical Equipment: Radar, radio, TV, etc.	10
Magnesium Powder	10
Consumer Products: ladders & hand tools, furniture, sporting goods, etc.	10
Textile Industry	10
Printing & Engraving	10
Unclassified or Miscellaneous	10
Total	100

Notes: 1—Above includes metal in the forms used by the particular industry. Thus: as rough castings, sheet, etc. used in the aircraft industry; not the primary and secondary Magnesium used to produce these forms. 2—No magnesium to stockpile is included. 3—The detailed uses, following the main headings, are arranged in order of their estimated position. 4—Total Magnesium consumption 1951 was approximately 100 million pounds (exclusive of stockpile). So, by coincidence the percentage figures approximate the amounts in millions of pounds.

\* Compiled by The Magnesium Association



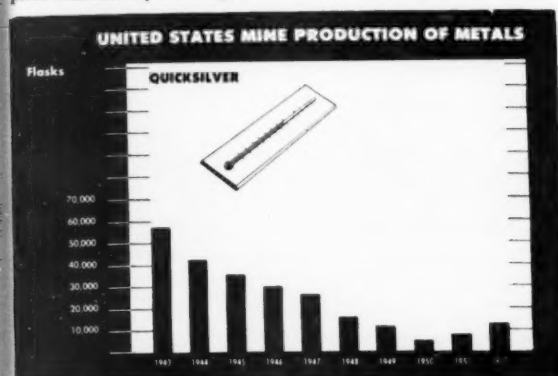
## MERCURY



By J. ELTON GILBERT  
Manager  
Cordero Mining Company  
Palo Alto, California

During 1952 domestic mercury production was about 12,500 flasks. This was an increase over both 1950 and 1951 but still well below consumption demands.

The price was about \$200 early in the year, decreasing to \$185, and then rising to \$218 by the end of the year. This price was determined by imports, chiefly from Spain and Italy. Apparently the Spanish producers were willing to absorb the United States' duties, which tended to force the market down. When metal became short, they abandoned this policy and the price immediately went up.



Most of the foreign producers were low on stocks at the year's end but their ability to produce metal at a price below United States costs is a factor which continues to dominate the price.

In this situation, the domestic producers have had no protection from our own government, in fact, Washington definitely favors foreign purchases whenever it is at all possible. At least in one case purchases were made abroad by our government denying domestic producers an opportunity to bid on the requirements.

This policy of discriminating against domestic companies has had a very strong effect in keeping the industry small. Mining companies hesitate to commit themselves to major exploration or development programs. Even prospectors feel that some other mineral will give them a better run for their money and there remain very few of them looking for new mercury mines or developing prospects.

One reason for this lack of activity in the industry is that the price, although around \$200, is not a good price in relation to costs. It is equivalent to about \$75 per flask in 1941.

Consumption for 1952 has been high—probably at least 45,000 flasks. Since part of the metal purchased is earmarked for electrolytic plant installations, it is difficult to differentiate between consumption and inventory stocks which will quickly go into consumption.

Very probably the amount consumed for the next year will be at or above last year's level. There is no reason to predict a drop in usage and there are rumors of new demands.

The production for 1952 was maintained chiefly by three domestic operations: New Idria Mining & Chemical Company and Sonoma Quicksilver Mines, Inc. in California, and the Cordero Mining Company in Nevada produced about three-fourths of the total. Probably the production from both Sonoma and New Idria will increase slightly in the coming year as both mines will probably find higher grade ore with new development.

The Defense Minerals Exploration Administration was assisting with several projects throughout the year but none of them developed anything of importance. However, at New Idria there seems to be a good chance of a DMEA project finding more ore.

**MINE DEVELOPMENT & DIRECTORY NUMBER, 1953**

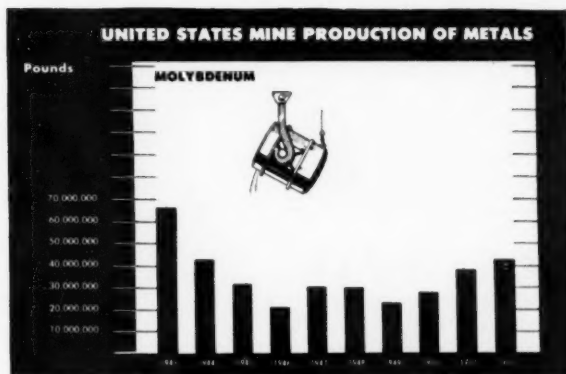
The general picture shows domestic production to be about 25 percent of consumption with little likelihood of a material increase. All the rest of the metal is imported. The price is completely determined by foreigners and can be changed drastically either upward or downward by any policy adopted by the European exporters.

## MOLYBDENUM

By C. M. LOEB, JR.  
Vice President  
Climax Molybdenum Company  
New York, N. Y.

The production of molybdenum was the highest in 10 years in 1952 and increased about 4,500,000 pounds above 1951 output. Colorado, where the Climax mine of the Climax Molybdenum Company is located, was again the leading producing state, followed in order by Utah, Arizona, New Mexico, Nevada, and California. Production in the five latter states was all a by-product of porphyry copper mining and milling, except in New Mexico where the Questa mine of the Molybdenum Corporation of America operates as a high-grade narrow vein mine, and in California where molybdenum is recovered as a tungsten by-product from the Pine Creek mine of the United States Vanadium Company.

The demand for molybdenum remained at a high level during the year. This necessitated continued controls by the Inter-



national Materials Conference over the distribution of molybdenum throughout the Free World, and United States government controls within the United States.

The Climax Molybdenum Company completed new facilities at its Climax mine in 1952 for early 1953 production. It is expected that the operation of these added facilities will result in a marked increase in United States production.

## NICKEL



By DR. JOHN F. THOMPSON  
Chairman, Board of Directors  
International Nickel Company of  
Canada, Limited  
Copper Cliff, Ontario

The accelerated expansion of existing production facilities and the advent of new and potential producers were the 1952 highlights of the Free World's nickel industry.

Free World output of nickel approximated 315,000,000 pounds in 1952, compared with 295,000,000 pounds in 1951. Canadian production approximately 280,000,000 pounds, or about 90 percent of the total.

Throughout the world the search for new deposits of nickel is being pushed at an unprecedented rate. This exploration work, both time-consuming and costly, is being carried on by interests new to the industry as well as by the established producers. In Canada, particularly, the wave of prospecting which is opening up new areas is attracting considerable attention to the country's untapped mineral resources. Most of this work is being financed by private capital, but some of it is being done with the financial assistance of the United States and other governments.

International Nickel Company of Canada, Inc., the world's largest producer of nickel, is pushing towards completion its major program of underground mining expansion at its operations in the Sudbury district of northern Ontario. The \$150,000,000 program is scheduled for completion next year. This will mean an annual capacity of 13,000,000 tons of ore entirely from underground operations, thus assuring maintenance of current yearly rate of approximately 250,000,000 pounds of refined nickel. INCO has vigorously continued in 1952 its search for new deposits of nickel in Canada and elsewhere.

Falconbridge Nickel Mines Limited with mines in northern Ontario, is Canada's second largest nickel producer, and is engaged in an expansion program designed to give the company an annual capacity of 35,000,000 pounds in 1954. The United States government-financed Nicaro nickel project in Cuba is back in operation and reported to be approaching its production goal of 30,000,000 pounds of nickel annually. Sherritt Gordon Mines Limited, which is developing a nickel-copper deposit at Lynn Lake, Manitoba, Canada is constructing a 17,000,000-pound annual capacity refinery scheduled for completion in 1953. The nickel mines operated by the French firm S. A. Le Nickel in New Caledonia is now producing approximately 14,000,000 pounds per annum and its facilities are currently being modernized.

The largest proportion of nickel continued to be consumed by the steel industries of the United States, the United Kingdom, and Canada, mainly in engineering steels, stainless steels and jet engine alloys.

In the field of heat and corrosion resistant alloy castings, nickel was used for industrial applications requiring high resistance to corrosion and strength at elevated temperatures. These alloys were also employed in many component parts of jet engines where their heat resistant qualities are of prime importance.

## OIL SHALE



By ROYD GUTHRIE  
Chief  
Oil-Shale Demonstration Bureau  
U.S. Bureau of Mines  
Rifle, Colorado

Through the cooperation of oil companies, cuttings from petroleum exploration holes drilled through the Green River formation were obtained, and assay data thereon have provided some indication of the richness and thickness of oil-shale beds in Utah and Wyoming, though the data are not yet adequate for estimating the reserves in these states.

In northwestern Colorado, the shale-oil reserves are estimated at nearly 500,000,000 barrels or about 18 times the proved crude-petroleum reserves in the United States. Of this tremendous shale-oil reserve, 126,000,000 barrels are in the Mahogany ledge, a rich bed of oil shale which averages about 90 feet in thickness and 30 gallons of shale oil per ton.

The United States Bureau of Mines' experimental underground quarry, where industrial mining costs are estimated at 47.6 cents per ton, is located in this formation. Although original plans were made to mine the 73-foot section by means of three levels using a room and pillar system, cost studies showed that a two-level system would be more economical and would furnish a more uniform grade of shale for the retorting plant. During the past year, the change-over to the two-level system has begun with the enlargement of the original 27-foot heading

to a 39-foot upper level. The lower bench will be 34 feet in height. The mining technology has not been changed; specialized equipment, designed by Bureau of Mines engineers, was modified for use on the two levels.

Rotary drilling research was continued during the year, the best performance coming from a 1½-inch masonry-type bit with a penetration rate of 83.7 inches a minute at the beginning of a 766-foot test and 67.7 inches a minute at the end of the test. It is estimated that this type of bit would permit an average of five sharpenings, giving a total footage of about 4,000 feet, making the average cost half a cent per foot for bits. Drill rod breakage is negligible, standard EX size diamond drill rod being used most frequently.

A new demonstration-size gas-combustion oil-shale retorting plant having a capacity of 150 to 300 tons of shale per day was completed during 1952 and initial operations will begin early in 1953.

Thermal cracking studies on shale oil, with emphasis on recycle cracking, viscosity breaking, and coking, have shown that virtually a full range of liquid fuels can be made from the crude, that naphtha yields of 50 percent are possible, and that the viscosity-broken crude shale oil is suitable for pipeline transportation.

## PERLITE



By E. P. CHAPMAN, JR.



JOHN A. WOOD

Consulting Geological Engineers  
Albuquerque, New Mexico

The perlite industry in 1952 continued the rapid growth that had characterized it since its inception in 1946. However, evidences of maturity put in an appearance and the growth curve showed definite signs of levelling off. A comparison of production and use figures for the years 1947 through 1952 are given in the included table.

Two trends, noted in prior years, continued during 1952: 1) the proportion of expanded product used for concrete is steadily increasing. 2) there is now virtually no waste of expanded fines.

Several companies are now devoting a portion of their capacity to production of fines for use as filter aids, foundry material and fillers for paint, plastics, and fertilizers. Loose perlite is used as a cover for molten steel when pouring delays occur. The insulating action of the perlite preserves the liquidity of the metal and particles in contact with the steel fuse with the slag and make it easier to remove.

No reliable figures are available for proportional end use of expanded perlite. It is estimated that 1952 uses were approxi-

### GROWTH OF PERLITE INDUSTRY FROM 1947 THROUGH 1952

Year	Crude Perlite Sold and Used by Crude Producers		Expanded Perlite Sold	
	Short Tons	Value	Short Tons	Value
1947 <sup>1</sup>	10,450	\$ 58,000	7,700	\$271,000
1948 <sup>1</sup>	22,100	134,000	18,600	742,000
1949 <sup>1</sup>	71,100	510,000	52,200	2,385,000
1950 <sup>1</sup>	101,536	649,162	86,962	4,741,343
1951 <sup>1</sup>	181,588	809,971	133,175	7,243,258
1952 <sup>2</sup>	220,000		150,000	8,000,000

1. Figures for 1947-51 from U.S. Bureau of Mines, Mineral Industry Surveys MIMS No. 2100. 2. Estimate of Perlite Institute.

mately: plaster aggregate, 60 percent; concrete aggregate, 35 percent; and other uses, 5 percent.

At a meeting of the Perlite Institute held October 1 through 3, 1952 in Minneapolis, the following officers were elected for two year terms: president, Lewis Lloyd, Alatec Construction Service, Inc., New Orleans, Louisiana; vice president, J. C. Kingsbury, Combined Metals Reduction Company, Salt Lake City, Utah; directors, Neal D. Snyder, Combined Metals Re-

duction Company, Salt Lake City, Utah, K. J. Bercaw, Great Lakes Carbon Corporation, New York City, and Kirk E. Hazeltin, Cleveland Gypsum Company, Cleveland, Ohio; secretary-treasurer, Richard L. Davis.

Institute offices are at 10 East 40th Street, New York 16, New York. Forty-five active perlite miners and expanders located in 32 states, Canada, and Mexico make up Institute membership.

A new specification for perlite plaster aggregate (ASTM C 35-52T) was adopted by the Perlite Institute and the American Society for Testing Materials during 1952.

A significant development during the past year was the appearance of pre-mixed perlite plaster aggregate and gypsum on the market.

Unusually lightweight design was made possible by the use of perlite plaster and concrete in a number of large buildings completed during 1952. Among these were the buildings of the Aluminum Company of America and the U. S. Steel Corporation in Pittsburgh, and the United Nations building in New York City.

Predictions of a continued high level of construction activity, together with careful product control under new ASTM specifications, wider acceptance of perlite by architects and engineers, and continued research into new uses for this versatile material, point to even larger production for 1953.

## POTASH



By A. NORMAN INTO  
Vice President  
International Minerals & Chemical  
Corporation  
Chicago, Illinois

Probably the most important events in the potash industry in 1952 were the entry into production of two new mines and refineries in the Carlsbad, New Mexico district. These additions to production were the mine and refinery built by Duval Sulphur and Potash Company, and the mine and refinery built by the Southwest Potash Corporation, a subsidiary of American Metals, Ltd. Duval's new operation got into full production by the first part of 1952 at a rate estimated at approximately 415,000 tons of muriate 60 percent per year, equivalent to 250,000 tons of  $K_2O$ . Southwest Potash's operation started in the fall and is currently approaching its rated capacity of 500,000 tons of muriate 60 percent per year, equal to 300,000 tons of  $K_2O$ . Both of these new producing units are located over substantial beds of potash discovered by the respective companies within recent years.

As a result of the operations of the two new mines and refineries, the Carlsbad basin will produce approximately 90 percent of the country's total of potash salts for the year 1953. Prior to the entry of the new companies, about 85 percent of the total tonnage of  $K_2O$  equivalent produced in this country came from the three companies which have existed in Carlsbad for a decade or more; namely, Potash Company of America, United States Potash Company, and International Minerals & Chemical Corporation. The balance of production came from two producers—American Potash & Chemical Corporation, which operates a crystallization plant utilizing the potash-bearing brines of Searles Lake at Trona, California; and Bonneville, Ltd., which produces potash from the brines of Great Salt Lake at Wendover, Utah.

With the seven producing units now in operation, the industry will have a production capacity of about 3,300,000 tons of salts, equivalent to about 2,000,000 tons of  $K_2O$  per year. The demands by agriculture continue to account for 95 percent of the usage of potash, mainly in the form of muriate of potash 60 percent and a minor percentage of potash in sulfate form, such as potassium sulfate and the double sulfate of potash magnesia. The  $K_2O$  consumption by industry is currently about 100,000 tons per year.

The continued rising demand for potash by agriculture since the late 1930's has been striking. For the three years prior to Pearl Harbor, the average North American consumption of  $K_2O$  by agriculture amounted to less than 500,000 tons a year, while the estimated consumption for this calendar year is expected to be in the neighborhood of 1,900,000 tons.

## UNITED STATES MINE PRODUCTION OF METALS



During the war years and the years since then, producers have continuously expanded production to take care of domestic needs. However, domestic production in the post-war years has not been adequate to supply the demands of agriculture and industry on this continent, and it necessarily has been supplemented by imports from Europe, mainly West Germany, France, Spain, and Russia.

It appears from the foregoing that the domestic industry can supply the estimated requirements of agriculture in 1953. However, with the added needs of Canada normally supplied from the United States, and the needs of industry for refined potash to be supplied by the domestic producers, there is an indicated shortage in the over-all supply. Should the importers continue to ship into this country in the same volume they have over the past several years, however, there will likely be more potash available than will be currently consumed.

About 5 percent of our domestic production of crude potash salts is used for chemical and industrial purposes. To supply this need, several of the plants at Carlsbad have facilities for refining the crude potassium chloride to a very high degree of purity. This is necessary, particularly for consumption in electrolytic plants for the production of caustic potash and potassium carbonate, from which a large number of end-products of potassium are derived throughout the entire chemical industry.

The Carlsbad ore bodies are of the bedded type, ranging from a few feet to upwards of 10 feet in thickness, and are workable by the normal methods used in the coal industry. The most modern mining equipment is used, such as undercutters, loaders, multiple drill units, and more recently, continuous mining machines. Four of the five operations at Carlsbad employ a flotation process for the beneficiation of ores, while the fifth uses the solution and crystallization method.

One company—namely, International Minerals & Chemical Corporation—has recently announced the development of a process of dry beneficiation employing treatment by the passage of the crushed ore between electrodes under specific conditions. Pilot plant work on a small scale has indicated the process to be an economical one and the company is now constructing a large pilot plant unit at its existing refinery for large-scale tests. International has also announced the opening of a new mine on an ore body recently discovered in the Carlsbad basin some distance from its present operation. It is expected that the new process will be employed at this new mine.

## SULPHUR



By JOHN C. CARRINGTON  
Vice President  
Freeport Sulphur Company  
New York, New York

The year 1952 was characterized by marked improvement in the world sulphur situation. It also saw the introduction of new and unusual mining techniques in the development of salt dome brimstone deposits in the Louisiana marshland. The shortage



which the free world had experienced since the outbreak of the Korean war came to a virtual end in the United States, and the situation abroad also brightened.

An important factor in this changed picture was the large number of new free world sulphur projects that were placed in operation or on which development was undertaken during the year. It has been estimated that these projects, if all are carried to a successful conclusion, will add by 1955 4,000,000 long tons of new productive capacity. Previous world output has been estimated at approximately 12,000,000 tons.

At the beginning of 1952 the sulphur situation was still critical. Domestic consumption of sulphur was restricted to 90 percent of the 1950 rate except for defense and essential civilian uses which were granted additional allowances.

A definite upturn in the sulphur situation began to be felt in the first half of the year. Some of the projects to increase the supply of sulphur in various forms were brought into production. Also, the progress made in the conservation of this vital raw material enabled some consuming industries to get along on somewhat less sulphur in relation to their output. The situation was further alleviated by the fact that, from time to time, some consuming industries operated at less than full capacity.

The government took cognizance of the improved supply situation in August by relaxing inventory controls. Continuing improvement brought about the complete removal in November of limitations on both inventories and consumption. Only export and price control still remain in effect.

United States supply of sulphur in all forms in 1952 was estimated at 6,500,000 long tons. Of this total, approximately 5,300,000 tons was Frasch-process brimstone from the Louisiana and Texas salt dome deposits. The remainder was principally in the form of sulphur recovered from hydrocarbon gases, sulphur contained in pyrites, and sulphuric acid obtained from smelter gases. Government estimates placed consumption, including exports, at 6,090,000 tons.

In the long-range program to increase the free world's supply of sulphur, the United States is playing the largest role and the salt domes deposits of the Gulf Coast are making the most significant contribution. Of the nearly 100 new free world sulphur projects tabulated by Freeport, half are in this country. They account for an estimated 2,000,000 tons of new productive capacity of which 1,370,000 tons is expected to be realized from four new salt dome mines and the expansion of an existing mine.

One of the new salt dome projects, at Bay Ste. Elaine in the remote Louisiana marshland, is an all-marine operation. It also marks the use of sea water as the mining medium. The power plant and auxiliary buildings are based on barges, and the mined sulphur is transported in liquid form by insulated barges to storage 75 miles distant.

Another new salt dome project to begin production during the year was that of Texas Gulf Sulphur Company at Spindletop near Beaumont. Texas Gulf also is expanding a mine at Moss Bluff in Texas, and Freeport carried on construction of a 500,000-ton-a-year plant at Garden Island Bay in the Mississippi delta and a smaller plant at Nash dome near Houston, Texas.

## SILVER



By E. WAFFORD CONRAD  
President  
American Silver Mining Company  
Spokane, Washington

The most encouraging development in the 1952 silver picture was a growing demand for the white metal in non-defense industries. Applications of silver brazing alloys continued to expand but, more significantly, the chemical, electrical, and electronic fields demanded more and more silver.

These new uses, fortunately, helped offset somewhat a big decline in use of the metal by silverware manufacturers. Less than half the total 95,000,000 ounces of silver consumed in the United States last year went into silverware. Five years ago silverware production accounted for about two-thirds of domestic consumption.

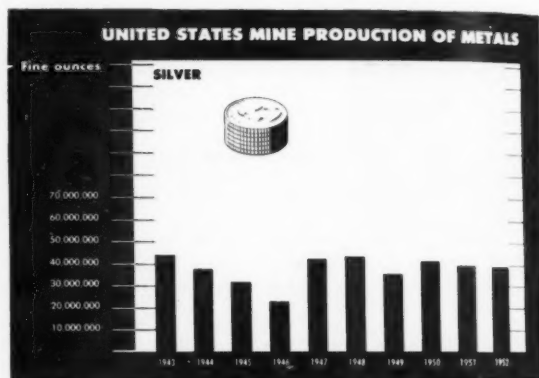
The 1952 consumption represented a 13.6 percent drop from the 110,000,000 ounces used in 1951. Silver production, on the other hand, increased more than 1 percent (about 500,000 ounces) to 40,500,000 ounces. Imports declined nearly 33 percent to approximately 75,500,000 ounces, making a total 116,000,000 ounces of new production available in this country.

Western hemisphere production of silver was estimated at 141,000,000 ounces, up 3 percent from 1951. Mexico, largest producer, boosted its output by 1,200,000 ounces to 65,000,000. Canada was in third place, trailing the United States, with estimated production of 25,000,000 ounces, an increase of 800,000 ounces. Peru scored the biggest production gain, upping output 2,000,000 ounces over 1951 for a total of 17,000,000 ounces.

Acquisitions of newly mined domestic silver by the United States Treasury Department totaled about 40,000,000 ounces in 1952. The United States government used more silver for coinage than in any year since 1945. The mints consumed 57,300,000 ounces, an increase of nearly 13,000,000 ounces over the amount used in 1951.

Foreign governments reportedly used 46,800,000 ounces of silver for coinage purposes. Saudi-Arabia used the most—23,000,000 ounces obtained from Mexico. Germany used 8,800,000 ounces in minting of five-mark pieces. Mexico used 8,300,000 ounces for coinage, and Canada about 4,200,000 ounces.

The U. S. Treasury Department's stocks of silver in bullion and coin declined more than 20,000,000 ounces. Free silver dropped from 124,500,000 ounces on January 1 to 79,100,000



ounces at the year's end. The drop more than offset the 26,000,000-ounce increase in silver bullion securing silver certificates.

The amount of lend-lease silver remained at 410,553,011 ounces throughout the year. Early in the year, the *Los Angeles Examiner* charged that the United States is facing a silver crisis because of the lend-lease silver. It contended that the supply of free silver in the United States mint is so inadequate that silver could not again be used as a copper substitute in defense plants as in World War II.

Reduction or elimination of the Treasury Department's 39-cent silver seigniorage charge to offset rising labor and material costs was urged by R. M. Hardy of Yakima, Washington, president of Sunshine Mining Company.

## TITANIUM



By P. W. ALLEN  
Plant Manager  
MacIntyre Development  
National Lead Company  
Tahawus, New York

With somewhat reduced sales and production of titanium pigments in 1952, the production of ilmenite, the principal raw material, dropped slightly below the record level of 1951 to 479,000 gross tons. Another 165,000 gross tons of ilmenite were



imported from India. Titanium slag from Canada, amounting to 55,000 gross tons, was also imported. The total of 679,000 tons of ilmenite and slag contained approximately 362,000 gross tons of  $\text{TiO}_2$ .

The MacIntyre Development of the National Lead Company at Talcott, New York, continued as the largest domestic producer of ilmenite with an output of 269,000 gross tons. MacIntyre also made over half a million tons of magnetite concentrate which were converted to sinter and sold to the iron and steel industry.

It is understood that the du Pont Company's operation at Starke, Florida, maintained the production rates of 1951, recovering ilmenite and other heavy mineral products by dredging and concentrating the ancient beach sand deposits of Trail Ridge. The Humphreys Gold Corporation continued to act as du Pont's operating agent at the Starke property. Humphreys Gold Corporation likewise operated the beach sand deposits of the Rutile Mining Company at Jacksonville, Florida, producing ilmenite, rutile, zircon, and some monazite at about the same rate as in 1951. Ilmenite was also produced by the American Cyanamid Company at Piney River, Virginia and by the Glidden Company in North Carolina. The latter is reported to have ceased production in October, 1952.

The Quebec Iron and Titanium Company reported that it mined 237,000 gross tons of ore at its Allard Lake property near Havre St. Pierre, Quebec, Canada, the ore containing more than 88 percent of combined titanium and iron oxides. The

## TIN



By ROBERT J. NEKERVIS  
Supervisor, Metallurgical  
Development  
Tin Research Institute, Inc.  
Columbus, Ohio

So far as the United States is concerned, the most significant development in 1952 was the trend towards further decontrol. A number of relaxations were made during the latter part of the year. The supply picture on tin is looked upon with misgivings by those producing tin. It is expected that the surplus of production over consumption will be around 45,000 long tons in 1952 as compared with 30,000 tons in 1951.

The outlook for 1953 is hopeful. There are a number of areas where considerable expansion in production might be expected. Only the principal ones will be covered here.

One item of particular importance to tin users in the United States this past year—there are no tin producers, that is mines, in the United States—was the publication of the Paley Report by the President's Materials Policy Commission. This report not only covered the world tin situation but also made recommendations for a stable and orderly tin market. It pointed out that the free world depends on Southeast Asia for over 60 percent of its newly mined tin. It also pointed out that anxiety in the United States over the possibility of war or political disruption in this area has been chiefly responsible for the continual controls on tin. The Commission examined the tin output and the tin reserves of the world outside the Iron Curtain. Reserves are estimated at 5,000,000 long tons of metal in ore. This is about 30 times the current annual rate of production. This estimate does not take into account the known existence of considerable areas of tin-bearing lands as yet incompletely prospected in Malaya and other tin-producing countries.

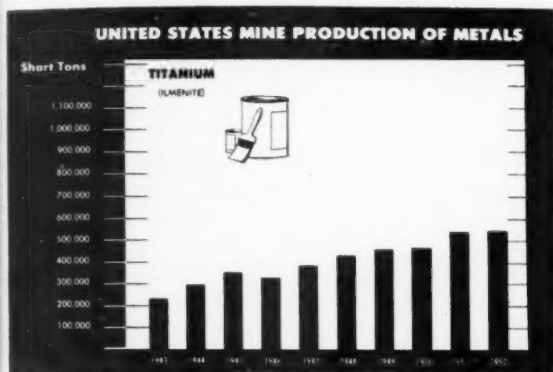
In 1952, for the first time since June 1948 when the campaign against the Communists bandits in Malaya began, prospecting was resumed in some of the Malayan producing areas. The resumption of prospecting in Malaya, however gradual, is vital to the maintenance of tin production in the years ahead. Assuming a general return to prospecting in 1953 and 1954, it is likely that production will be maintained at or near the present level of about 56,000 long tons per year until 1955 when additional resources may permit a rise to 60,000 tons per year or more.

Indonesia, favored by peaceful conditions on its tin-producing island, had an annual output of 35,003 tons indicating a 1952 total close to 35,000 tons as compared with 30,986 tons in 1951. There is a good chance that if the Iode mine at Klappa Kampit can be reopened—it is still flooded as a result of war-time demolition—production may rise considerably in the next few years. A quarter of the Billiton Company's 1938 output of 29,000 tons came from Klappa Kampit. Production benefits would also follow from an extension of dredging operations in the shallow coastal waters of the tin-bearing islands, Banka, Billiton, and Singkep.

The total 1952 African production may be estimated at 22,670 tons as compared with 23,442 tons in 1951. Prospects for increased production appear to be most favorable in the Belgian Congo. An Economic Cooperation Administration loan of \$1,700,000 has enabled GEOMINES to mine large deposits of unaltered pegmatite in the Manono area of Katanga.

The remaining major producer, Bolivia, nationalized the mines on October 2. It seems unlikely that the 1952 output will exceed 31,500 tons as compared with 33,134 tons in 1951. The Reconstruction Finance Corporation has declined to underwrite a long-term contract with the Bolivian Government until the unsettled situation between the former mine owners and the Bolivian Government is cleared.

Tin prices were remarkably steady through 1952. The outlook for 1953 is more of the same, since prices are expected to remain geared to the RFC selling price to United States consumers of \$1.21½ per pound. No marked changes in the existing world price structure is expected until after the RFC contracts with Indonesia and the Belgian Congo are reviewed at the end of 1953. These enable the RFC to buy tin at £944 per ton (\$1.18 per pound) f.o.b. the port of shipment.



electric furnace operation at Sorel yielded 35,000 gross tons of slag containing 72 percent equivalent  $\text{TiO}_2$ , 11,000 gross tons of pig iron and 21,000 gross tons of steel. Practically all of the slag was exported to the United States for titanium pigment production. According to previously published information, five electric furnaces, each with a 270 gross ton daily ore capacity, are expected to come into production at an early date.

Norwegian ilmenite production remained at 1951 levels; all of it was used in European pigment plants. The Otonmaki Company of Finland expects to begin the production of ilmenite, magnetite and pyrite by mid-1953. Plans call for the mining of 600,000 tons per year of ore by underground methods. Fine grinding and magnetic and flotation concentration are expected to yield 75,000 tons of ilmenite, 150,000 tons of magnetite and 5,000 tons of pyrite annually.

The titanium pigment industry continued to absorb all but a small fraction of the ilmenite consumed. Ferro-titanium alloys accounted for most of the balance. Titanium oxides find widespread use as pigments in protective coatings for military, domestic, and industrial requirements. Welding rod coatings, paper manufacture, rubber goods, plastics, and linoleum require important quantities of the oxide.

Titanium metal continued to be the subject of intensive research, discussion and speculation. Actual production was estimated by the U. S. Bureau of Mines at 1,100 net tons of sponge, more than double that of 1951, and it came principally from Titanium Metals Corporation (National Lead-Allegheeny Ludlum Steel), and the du Pont Company. The most notable advance in technology was the regular production of 1,500 pound ingots. Sponge production continued to come principally from the reduction of titanium tetrachloride by molten magnesium but many concerns are engaged in the search for lower cost techniques. Presently quoted prices for titanium metal bar and forgings continue to exceed \$10.00 per pound.

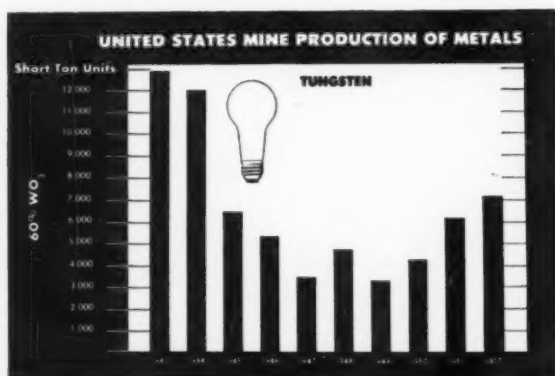
Rutile remained the principal raw material for titanium metal production and was obtained from beach sand deposits in Florida and Australia. Methods for using ilmenite or Canadian slag are being studied.

## TUNGSTEN



By **WORTHEN BRADLEY**  
President  
Bradley Mining Company  
San Francisco, California

Aided by favorable prices, the total supply of tungsten ores and concentrates (referred to hereafter simply as "tungsten") continued its upswing during 1952. Domestic consumption declined, yielding an oversupply, most of which was presumably absorbed by the United States' government for its stockpile.



More specifically, fourth quarter 1952 domestic production was 2,013 short tons of 60 per cent  $WO_3$  (which is the unit of measurement in the accompanying table—and also in the text, unless otherwise stated). This 2,013 was the highest quarterly figure since 1944, and portrays the rising trend by being up 29 percent from the 1951 quarterly average.

Because of this altered market picture, several agencies have relaxed their control over the metal. The International Materials Conference, for instance, cancelled tungsten allocation at the end of 1952. At home the Defense Minerals Procurement Agency kept tungsten allocated throughout the year, but in February, 1953, announced that free trading would be permitted. DMPA retained the authority to issue special directives; and its deputy administrator, Howard I. Young, spoke further. He stressed the fact that the government's five-year domestic program is not affected. The bulk of domestic production has found a ready market and the government has thus far had to buy only 88,193 units (of the 3,000,000 covered by the price guarantee), Mr. Young added. And he explained that certain of the very pure "black" tungsten concentrates remain in short supply; hence the retention of allocation of government-imported tungsten.

The National Production Authority has dropped allocations of pure tungsten and ferro-tungsten, and the Defense Production Administration has taken tungsten off its list of "most critical" materials. With its decontrol orders of March 12 and 17, 1953, the Office of Price Stabilization has removed price ceilings from tungsten and tungsten products.

The easier economic situation should be qualified. Certain concentrates (see above) remain in short supply, due to limited Free World production of that type, and since a large part has been sold to the government stockpile on long term contracts. On the other hand, scheelite concentrates (especially those containing high molybdenum) are in comparatively easy supply. But, at any rate, the United States properly continues to show some concern over total supply. The DPA expansion goal has been reset to 42,003 tons per year by 1954 (compare this with total free world production of 28,219 in 1951). It is understood that the situation will be reviewed for 1955 and beyond.

The Domestic Tungsten Program of General Services Administration continues to be of great benefit to domestic producers. The agency will pay \$63.00 per short ton unit, less penalties, for tungsten not absorbed by industry. It is likely that the program will run at least until July 1, 1956, the present author-

ized end point (rather than 3,000,000 units; see above). The agency has eased matters by raising the allowable molybdenum content from 0.4 to 2.75 percent.

Encouraged by the above program and by others, domestic producers have enlarged their activities. Among "other programs" would be the exploration now going on, largely financed by assistance loans from the Defense Minerals Exploration Administration. There were 41 such contracts in force as of June 30, 1952.

New properties have been opened, or are in the process of starting up, in most of the western and mountain states. The mills of the Hamme (North Carolina), Ima (Idaho), and Riley-Getchell (Nevada) mines were improved and expanded during 1952. The Bradley Mining Co. will continue exploring for scheelite at Stibnite (Idaho), and plans to mine the same mineral at its nearby Springfield property this summer.

Turning to imports, 93 percent of 1952's 18,310 tons came from the Republic of Korea, Bolivia, Portugal, Spain, Thailand, Brazil, Burma, Australia, and Canada, in order of volume.

Tungsten will be coming from Korea at an increased rate. In December, 1952, the Utah Construction Company contracted with the United States and South Korean governments to expand mining and milling practice at the principal properties, 83 miles south of the firing line. This is part of Korea's \$2,000,000 program to double ore production from the present annual 250,000 ton level. The ore is said to average 1.4 percent and the concentrates are exported exclusively to the United States under a trade agreement. This increase may compensate for the anticipated Bolivian decline.

It is learned that the O'okiep Copper Co., Ltd., has contracted with the United States for sale of all tungsten concentrates from its South African properties until 1958.

London quotations indicated a drop from the equivalent of a \$64.00 tungsten price in January, 1952, to \$41.00 for wolframite and \$4.00 for scheelite, in March, 1953. It is too early to tell how much effect this adverse price change will have on foreign production.

And no review of 1952 would be complete without mention of the Paley Report. That famed and bulky document places tungsten among the more desirable elements, by projecting a 150 percent increase from 1950 to 1975 in both United States and Free World demand. The report makes this comment on United States prospects: "The principal reserves are in the range from 0.4 to 1.0 percent of  $WO_3$ , and it is anticipated that new discoveries will be made in this range."

**Summary of Tungsten for 1951 and 1952**

Period	Domestic Mine Production (a)	Imports for Consumption (b)	Total Supply (a) + (b)	Consumption	Total Industry Stocks at End of Period
1952					
Year	7,168	18,310	25,478	9,073	3,175
Average Quarterly	1,792	4,578	6,369	2,268	2,237
1951					
Average Quarterly	1,554	1,675	3,229	2,997	4,400

## URANIUM



By **WILLIAM J. WAYLETT**  
Special Assistant to the Director,  
Division of Raw Materials  
United States Atomic Energy  
Commission  
Washington, D. C.

In 1952 initial production from two new sources of uranium was added to the increasing quantities of uranium becoming available for the defense of the free world. Of major importance was the opening of a plant to recover byproduct uranium from the gold ores of the Witwatersrand in South Africa. In the United States, the first plant to extract byproduct uranium from Florida pebble phosphate rock went smoothly into production.

South Africa becomes the newest foreign source of uranium available to the United States. The first of a series of plants

being constructed there was erected at Krugersdorp, west of Johannesburg, by the West Rand Consolidated Gold Mines, Ltd. The plant was officially opened and dedicated by the Prime Minister of South Africa on October 8. Most of the other plants under construction are expected to be completed in 1953 and additional plants are planned. The production of uranium from the Rand gold ores is the result of laboratory research and pilot plant work extending over a period of several years.

Plans are underway for the expansion of production from existing foreign and domestic sources and a world-wide search is being made for new productive deposits. The Belgian Congo continued to be the principal source of uranium for the free world, with production coming from the famous Shinkolobwe mine. Canada also continued as an important producer, with its principal source of production being the Eldorado mine on Great Bear Lake. Despite the limitations placed on Eldorado's mining capacity by a mill fire in November 1951, a significant tonnage of concentrates were produced during the year. The Eldorado Mining and Refining Company, Ltd., a crown company, which operates the Eldorado mine, continued to develop the Ace mine in the Beaverlodge Bay area on Lake Athabaska in northern Saskatchewan. A 500-ton-a-day mine plant is under construction, and other uranium occurrences in the area are being explored. The Lake Athabaska region appears certain to develop into Canada's most important uranium producing area.

Development of two important deposits in Australia is being pushed. The Radium Hill davidite deposit in the State of South Australia is being readied for production. In the Northern Territory, about 60 miles south of Darwin, the promising Rum Jungle deposit of uranium associated with copper is being explored. Although it is a recent discovery, the exploration results so far obtained indicate that the Rum Jungle area will become an important producer.

The completion of the first plant to recover uranium as a by-product from phosphoric acid is also the result of several years of laboratory research. The plant was built by the Blockson Chemical Company at Joliet, Illinois. Additional plants are under construction near Mulberry, Florida by International Minerals and Chemical Corporation and Virginia-Carolina Chemical Corporation, and at Texas City, Texas by Texas City Chemicals, Incorporated. Research studies are being continued by a number of other interested producers of phosphate chemicals and plant food products. Plans for additional plants have been developed by many of these companies, including several firms which process the phosphate rock of the Phosphoria formation occurring in several western states.

Domestic uranium mining activity continued to center in that vast area of uranium mineralization known as the Colorado Plateau, although ore production was noted in several other areas elsewhere in the West. Recent discoveries in Arizona and New Mexico point to a further expansion southward and westward of the area of known uranium mineralization. The Arrowhead Uranium Company has made several ore shipments from a mine near Cameron, Arizona, where the ore occurs in the Chinle and Shinarump formations. Several other prospects in Arizona are being studied. In New Mexico some new ore occurrences have been noted south of the Grants area. Elsewhere on the Plateau, the Shinarump formation and the Salt Wash member of the Morrison sandstone continue to be the principal sources of carnotite ore.

The Commission established three new ore-buying stations during the year. The stations at Shiprock, New Mexico and Edgemont, South Dakota are operated for the Commission by the American Smelting & Refining Company. The third station is at Grants, New Mexico and is operated by the Anaconda Copper Mining Company. Another station, to be set up at Greenriver, Utah, is in the planning stage. The Grants station is located at nearby Bluewater, where Anaconda is erecting an ore processing plant to treat ores found in the Todilto limestone. Ores delivered to the ore-buying station are being stockpiled in preparation for the completion of Anaconda's plant in the late summer of 1953. Consideration is now being given to the construction of facilities to treat the sandstone ores of the district and of the nearby Laguna Indian Reservation.

The Shiprock station opened early in the year and has provided an outlet for the ore producers in the Lukachukai Mountains district of Arizona and the East Carrizo Mountains of New Mexico. Kerr-McGee Oil Industries, Inc., which is arranging to acquire the holdings of the Navajo Uranium Company, the principal ore producer in the Lukachukai district, is planning to erect an ore processing plant at Shiprock to treat the ore from the district.

An important new producing area has been found on the flanks of the Black Hills uplift, where carnotite deposits similar to those of the Colorado Plateau, are found in the Lakota member of the Dakota sandstone. The ore-buying station at Edgemont, South Dakota, which commenced buying ore in December, has provided stimulus to the further development of this region. Several new deposits were found in the Black Hills area by airborne and ground exploration during the year.

Primary vein-type uranium ore continued to be produced in substantial quantities from the Marysvale, Utah district. Principal producers are the Freedom No. 1, Freedom No. 2 and Prospector mines of the Vanadium Corporation of America, with most of the ore being shipped directly to the Vitro Chemical Company plant in Salt Lake City. A long crosscut was driven during the year from the Prospector mine to cut the Freedom veins below the present workings. A 3-compartment shaft is being sunk to the long crosscut, which will be centrally located with respect to all VCA holdings. Future mine development will be planned around the central shaft. The Bullion Monarch Mining Company also produced some ore from its properties during the year.

Ore from underground prospecting and development accounted for minor production from the W. Wilson property in the Boulder Batholith area near Clancy, Montana, the Silver Cliff mine near Lusk, Wyoming and from several small mines in the Colorado Front Range.

Eight uranium ore-processing plants were operated during the year on the Colorado Plateau. The Anaconda plant at Bluewater, New Mexico will make a ninth when completed. In addition to the plant to be built at Shiprock, New Mexico by Kerr-McGee, the Vanadium Corporation of America has definite plans for a new plant at Hite, Utah to replace the experimental unit there which has been operating on copper-bearing uranium ores produced in the nearby White Canyon district.

Expansion programs were completed at several of the mills during the year. The largest expansion took place at the Uravan, Colorado plant of the U. S. Vanadium Company where capacity was approximately doubled. The Vanadium Corporation of America completed a major expansion of its facilities at Durango, Colorado, and Climax Uranium Company increased the capacity of its Grand Junction, Colorado plant. At Salt Lake City, Utah, the Vitro Chemical Company undertook a program of plant improvement and expansion to increase capacity. A pilot plant has been erected in Grand Junction by the Commission to test improved methods of extracting uranium from ore.

Uranium exploration by the United States Geological Survey and AEC, consisting principally of geological investigations, airborne radiometric surveys, field reconnaissance, and exploratory drilling, both from the surface and underground, was greatly increased during the year. Drilling done by the Commission, the USGS and U. S. Bureau of Mines under contract amounted to approximately 1,100,000 feet during the year as compared with 765,000 feet in 1951. Additionally, at least 300,000 feet of hole is estimated to have been drilled by private interests. Most of the drilling was performed on the Colorado Plateau with minor quantities in the Colorado Front Range, South Dakota Black Hills region, and isolated areas in Wyoming.

Airborne radiometric surveys by the AEC and USGS amounted to over 625 hours of flying in the Black Hills area of South Dakota, on the eastern flank of the Big Horn mountains and in the Powder River Basin of Wyoming, and on the Colorado Plateau. As the year closed new air-borne projects were started in the Cameron, Arizona area and the Canadian River region of New Mexico. Private interests, particularly Anaconda Copper Mining Company, Homestake Mining Company, Kerr-McGee Oil Industries, Inc. and Hunt Oil Company, have also carried on airborne exploration during the year.

In eastern Pennsylvania, an airborne survey has been undertaken to determine the extent of uranium mineralization in the vicinity of Mauch Chunk, where the existence of carnotite occurrences has been known for many years. A mine adit is to be driven there by the Lehigh Coal and Navigation Company to systematically explore carnotite occurrences revealed by a recent roadcut.

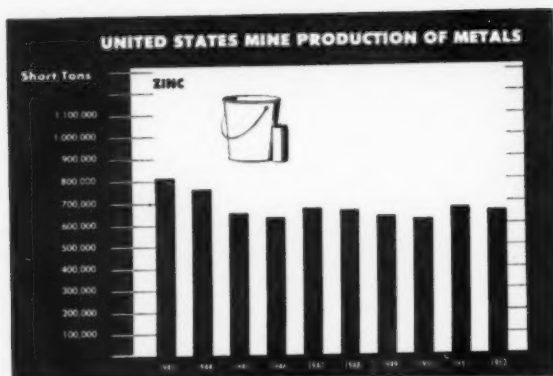
## ZINC



By OTTO HERRES  
Vice President  
Combined Metals Reduction  
Company  
Salt Lake City, Utah

The zinc story for 1952 may be told in terms of the metal price changes. From October 2, 1951 until June 2, 1952, the price of Prime Western zinc at East St. Louis was 19.5 cents a





pound. On June 2, the Supreme Court of the United States ruled that the seizure of the steel industry by President Truman on April 8, was an unconstitutional act. Thereupon, Mr. Philip Murray of the CIO ordered a strike of some 600,000 steelworkers which continued from June 2, to July 26, and beyond.

With the largest consumer of zinc out of the market and supplies of steel to the automobile industry and appliance manufacturers curtailed by the strike, orders for zinc for galvanizing and die castings were held up, or cancelled, and the demand fell off drastically. On June 2, the date of the steel strike, the price of zinc dropped to 17.5 cents; on June 5, to 16 cents; and by June 18, to 15 cents. Heavy stocks accumulated in the hands of producers and a rising tide of imports caused a further drop to 13.5 cents a pound by August 6.

Resumption of work by the steel mills strengthened the market for zinc temporarily and moved the price up to 14.5 cents by September 12, but the heavy stocks piled up during the strike and large supplies of foreign zinc coming here to find a market caused further price breaks.

The British Ministry of Materials restored free trading of zinc on January 2, 1953.

The unsettlement in lead and zinc prices can be attributed to miscalculation on the part of the British Ministry of Materials during 1951. Large tonnages were purchased in anticipation of serious shortages which did not materialize. World production increased substantially when stimulated by abnormally high world prices considerably above United States ceiling prices. The temporary shortage of zinc during 1950-1951 was severe in its effect on British defense and civilian needs. When balance was restored to supply and demand the Ministry of Materials had large tonnages on order which were placed at premium prices. During the closing months of 1952 deliveries were heavy and stocks held by the British Ministry and consumers went up to some 152,000 tons of zinc and 58,000 tons of zinc in concentrates to a total of around 210,000 tons, or approximately 10 months' supply at the present rate of consumption in the United Kingdom.

Smelter output of slab zinc in the United States for 1952 amounted to approximately 961,200 tons, and came within 10,000 tons of the all-time high reached in 1943 during the period of peak demand of World War II. Deliveries fell some 65,000 tons short of production, about equivalent to the tonnage drop in June and July during the steel strike.

Domestic mine production for the first six months of 1952 was 361,000 tons and probably would have reached 720,000 tons for the year, except for the price break caused by a flood of imports. As a result of rising costs and falling prices brought about by competition from the low-wage foreign metal, many mines were forced to close. Mine output after the June price break dropped approximately 10,000 tons a month from an average of 60,000 tons to around 50,000 tons from July on. Because of the mine closings, output for the year probably fell a few thousand tons short of the 671,526 tons reached in 1951. Final figures show 1952 mine production of zinc to be 661,023 tons.

In spite of the 36 percent price drop for zinc, a decision of the Wage Stabilization Board in a dispute between the United Steelworkers, CIO, and Utah lead-zinc mines had the effect of increasing wage costs of the mines by approximately 34 percent. Average monthly wages for lead-zinc mining in Utah reported by the Industrial Commission of Utah increased from \$349 during the last quarter of 1951 to \$467 by the third quarter of 1952. But in consequence some mines were forced to close including two of the larger properties and employment in lead-zinc mining decreased about one-fourth. At the close of the year the Tooele, Utah smelter of the International Smelting and Refining Company suspended operations temporarily because curtailment of mining operations left the plant short of ore and concentrate for treatment.

The total cost of production for lead and zinc is approximately

the price of the metal, because, in order to accomplish the greatest financial return and at the same time extend the life of a mining property, the producer cannot take out the richest ore, but must mine the leanest ore and employ the most effective metallurgical process that will yield a reasonable profit; that is, costs tend to approach the price. And when metal prices tend to become unprofitable production begins to dry up. Mine output dropped materially after the price breaks and wage increases of 1952 for this reason.

Effective May 15, 1952, Government controls over allocations, delivery and use of slab zinc were removed.

Contracts entered into by the Defense Materials Procurement Agency for the expansion and maintenance of supply of zinc under the Defense Production Act as of August 31, 1952, reported to the House Subcommittee on Mines and Mining of Congress are listed below.

American Smelting & Refining Company, Van Stone Mine, Washington, a total of 18,436 tons of zinc in 3½ years commencing October, 1953, at a price of 15.5¢ per pound. American Zinc, Lead and Smelting Co., Quick Seven Mine, Missouri, a total of 11,000 tons of zinc in 3 years commencing December, 1952, at 17¢ per pound. American Zinc Company of Tennessee, North Friends Property, Tennessee, a total of 11,600 tons of zinc, contingent purchase commitment 7,200 tons, in 3 years commencing November, 1952, at 17.5¢ per pound. Appalachian Mining and Smelting Co., Embreeville, Tennessee, a total of 10,000 tons of zinc in 2½ years commencing November, 1952, in 2½ years at 17.5¢ per pound. National Zinc Co., Inc., concentrating in Mexico and smelting in the U. S., a total of 20,000 tons of zinc in 5 years commencing October, 1952, at 16.5¢ per pound. Volcan Mines Company, Peru, smelting to be done in

#### Comparison of Zinc Prices to Average Wages Per Hour and to Cost Index Based on U. S. Bureau of Labor Statistics for Three Representative Years

Year	Avg. Wages Per Hour	Zinc Prices	Index of Labor Cost Per Unit of Lead and Zinc
1939	\$0.683	\$0.052	100
1949	1.565	0.124	229
1952	1.91	0.125	281
	(October)	(December)	Not available Probably 100-

the U. S., a total of 54,000 tons of zinc, contingent purchase commitment 13,680 tons, in 5½ years commencing January, 1953, at 17.5¢ per pound.

In addition six contracts were reported covering lesser tonnages varying from 790 tons to 7,400 tons for a total of some 24,440 tons at prices ranging from 15½ to 17½ cents per pound of zinc over periods of 2 to 3 years.

Defense minerals exploration projects under Government contracts reported in force as of August 31, 1952, at lead-zinc properties numbered 107 in the amount of \$7,504,631 of which the Government's share was \$3,748,964.

Duties on zinc ore and slab zinc were suspended on February 12, 1952, until March 31, 1953, provided the price of zinc did not fall below 18¢ per pound. When the average price remained below 18¢ during the month of June, the duty was restored on July 24, to 0.70¢ per pound on slab zinc and on zinc in ore to 0.60¢ per pound.

Zinc imports of the United States during 1952 increased to approximately 550,000 tons, including metal content of ore, in contrast to 391,021 tons for 1951 when a zinc shortage prevailed in this country and a ceiling price lower than world prices was in effect. This is no departure from our past experiences in world trade. When a shortage exists in the United States and foreign materials are needed prices are high. But when production is expanding and a surplus is available, foreign materials from countries having lower wages and devalued currencies are dumped on our markets to cause the closing of many properties and idle the workers.

The severe drop in metal prices during 1952 can be attributed directly to the Truman administration free trade policies and the State Department program for financing increased foreign production of metals in preference to protecting domestic production essential to national security. This program is contributing to the very substantial expansion of zinc production under way in Africa and South America.

In view of international political uncertainties and the conclusion of the President's Materials Policy Commission that we are threatened with shortages of the basic metals, national security requires a healthy domestic mining industry with ample productive capacity and experienced working forces. Industry members are looking to Congress to adopt constructive legislation in the form of a flexible import tax, which may be suspended during times of shortage and high metal prices, to preserve the domestic mining industry.



# 1952 UNITED STATES MINING REPORT

## ALASKA

### Coal Production Boosts Mineral Output to New Postwar High

Alaska's estimated mineral production for 1952 amounted to \$21,000,000, an 8 percent increase over 1951 and another postwar high. The increase was due almost entirely to the coal mining industry which produced 648,000 tons—an all-time high for the Territory—an increase of 31 percent over the 1951 figure. The tonnage produced during 1952 was just sufficient to supply the local demand. New installations will boost this demand to 850,000 tons in 1953, indicating the need for development of new mines.

Gold production amounted to an estimated 233,500 ounces, only 2½ percent below the 1951 production. Gold still remains the most important mineral produced in Alaska, followed in total value by coal, sand and gravel, platinum, antimony, tin, tungsten, and silver in that order.

Adverse economic conditions still plague the industry. The high wages offered on the many defense projects in the Territory make it extremely difficult for mining companies to compete in the labor market. In the face of continually rising operating costs, and the \$35 per ounce "pegged" price for gold, many small placer operations have been suspended. Those who continued to operate did so by working only the higher grade portion of their ground—leaving marginal material which may never be worked—or were able to increase the efficiency of their operations by increased mechanization or other improvements. At the close of the year, only one small gold lode mine was active.

Increased interest in the base metals was evident throughout the year. Active work took place on copper, nickel, and iron deposits in southeastern Alaska, copper in the Copper River region, and mercury in the Kuskokwim region. Activities increased in tin and tungsten operations on the Seward Peninsula, and tungsten in the Fairbanks district.

The Defense Minerals Exploration Administration continued to participate in development of strategic and critical minerals throughout the Territory. DMEA loans totaling \$928,000 were authorized for various projects as follows: tin and tungsten in the Port Clarence district, tungsten in the Fairbanks and Nome districts, tin in Melozitna district, copper in the Prince William Sound

district, mercury in the Bristol Bay district, nickel-copper-cobalt in the Admiralty Island district, and antimony in the Ketchikan and Kantishna districts.

DMPA also authorized a \$1,000,000 loan as an operating advance against future production at a tin-tungsten lode operation in the Port Clarence district.

Exploration for radioactive minerals continued and several areas in Alaska appear favorable as a possible source of commercial-grade material. Specimens of this high-grade material have turned up, but efforts to trace them back to their sources have so far been unsuccessful.

**Southeastern Alaska:** A marked revived interest in base metals exists in this region. Admiralty-Alaska Gold Mining Company continued its exploration of the Funtier Bay nickel-copper-cobalt deposit. Canadian engineers, representing Toronto and New York interests, have staked the nickel-copper deposits on Yakobi Island, and have indicated a geophysical survey and diamond drilling program for 1953.

Some actual drilling of the Klukwan magnetite deposit, following a dip-needle survey, was accomplished in an effort to develop a tonnage of high-grade iron ore for export to Japan. This tremendous deposit has definite concentrations of high-grade, but its greatest commercial value lies in the mining, beneficiation, and smelting of the entire deposit of ore near the site. The Snetisham deposit, just south of Juneau, is to be drilled by the U. S. Bureau of Mines following a dip-needle survey. This is also a large magnetite deposit, but appears to contain enough titanium to indicate its possible recovery as a by-product.

Exploration of known manganese deposits and a new molybdenum find will be conducted next year.

Exploration of a thorium-bearing rare earth deposit of appreciable size in the Ketchikan district was conducted by Smith, Pitcher and Company.

**South Central Alaska:** Exploration work continued on copper prospects in the Nizina and Prince William Sound Districts.

Exploration work by DeCoursey Mountain Mining Company on extensive mercury holdings in the Kuskokwim River region continued. Goodnews Bay Mining Company continued its platinum placer operations at its usual rate in the Goodnews Bay district.

**Yukon Basin Region:** United States Smelting, Refining and Mining Company was again the largest single gold pro-

ducer, operating six dredges in the Fairbanks district. The Alaska Metals Mining Company continued development of its tungsten property at Gilmore Dome in the same district. The Stampede antimony mine suspended operations due to unsettled market conditions.

**Northwestern Arctic:** Three gold dredges were operated at Nome by the United States Smelting, Refining and Mining Company. The U. S. Tin Corporation developed its tin lode property and constructed a mill preparatory to year-around production of tin. The Zenda Gold Mining Company has developed a rich placer-tin area and plans dredging operations in 1953. Both of these tin operations are in the Port Clarence district. Small shipments of jade were made by Empire Jade Company operating in the Shungnak district.

## ARIZONA

### Nation's Top Copper Producer; Large-Scale Expansion On

Arizona maintained its position as the nation's leading copper producer in 1952, and once again topped all states in the total value of the five major metals—copper, lead, zinc, gold, and silver—estimated at \$219,656,810.

The state's 1952 copper output is estimated at 393,350 tons, or more than 40 percent of the total U.S. production, and is equal to the combined production of the next three copper producing states. The output failed, however, by 22,520 tons, or 5 percent, to equal the record output established in 1951. The Morenci mine of Phelps Dodge Corporation remained by far the largest producer of copper in the state, but its output was 13 percent less than in 1951, due to the lower grade of ores mined.

Among gold-producing states, Arizona ranked fifth, with an output of 113,500 fine ounces, valued at \$3,972,500. This is a decrease of 2,593 ounces, or about 2 percent, from the 1951 production. About 75 percent of the gold was recovered from copper ore mined at Ajo, Bisbee, Jerome, Superior, Morenci, Ray, and Miami. The rest came largely from zinc-lead ore and from zinc-copper ore. The decline in production of gold from zinc-lead and zinc-copper ores more than offset an increase from copper ore.

Output of lead and zinc was adversely affected by the drastic price drops. The recoverable lead dropped from 17,394 tons in 1951 to 16,150 tons in 1952, or 7 percent, while zinc production declined from 52,999 tons in 1951 to 46,000 tons in 1952, or 13 percent. The 1952 output of lead was valued at \$5,168,000; zinc output at \$15,180,000.

In August the Eagle Picher Company closed its San Xavier mine near Tucson, and Magma Copper Company suspended production of zinc-copper ore at Superior. In December the Mammoth-St. Anthony property at Tiger was shut down. By the end of the year most of the smaller producers had suspended work.

Open-pit mining at the Ray Mines Division of Kennecott Copper Corporation

Production of Gold, Silver, Copper and Lead in Alaska from 1941 Through 1952

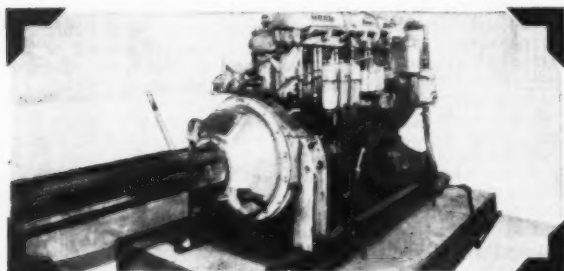
Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons
1941	695,467	191,522	72	662
1942	487,621	119,704	27	415
1943	99,583	42,788	27	200
1944	49,296	13,362	2	44
1945	68,117	9,983	5	11
1946	226,781	41,793	2	115
1947	279,988	66,150	12	264
1948	248,395	67,341	16	329
1949	229,416	36,056	4	51
1950	289,272	52,638	6	149
1951	239,637	32,870	1	21
1952	233,428	31,825	—	1

1. Estimated.

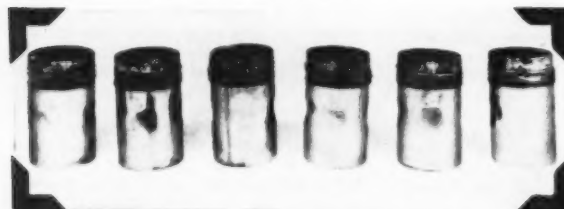
# THE ENGINEER'S REPORT

	DATA
LUBRICANT	RPM DeLo Oils
UNIT	Caterpillar D13000 diesel
CONDITIONS	Constant load
PERIOD	7650 hours
FIRM	Dean H. Thayer, Mesa, Ariz.

## Only 0.001" bearing wear in 7650 hours of work!

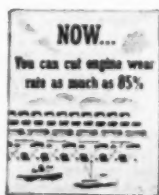


WORKING UNDER A CONSTANT LOAD pumping water, this D13000 diesel on the Dean H. Thayer ranch, Mesa, Arizona, ran 7650 hours before it was overhauled. An emergency made it necessary to run the engine for several days without safety cut-offs. Severe over-heating caused the governor to stick and the unattended engine reached a speed of approx. 1800 r.p.m. before it could be shut down.



NO MEASURABLE WEAR was evident on the pistons which showed original tool marks. Greatest wear on liners was 0.005. Piston rings were all free, oil rings were open. After inspection, main bearings, crankshaft, cam & cam bearings, piston pins and bushings were all put back in service.

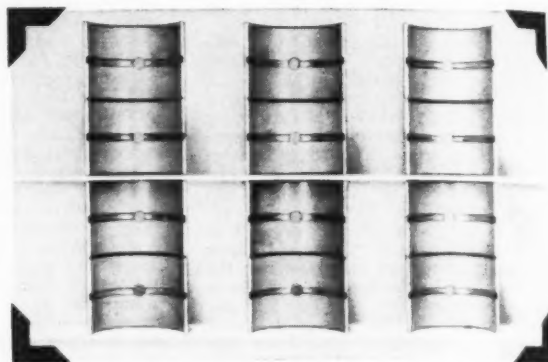
REMARKS: This engine operates year 'round in widely varying temperatures. In wintertime, the irrigation water is used to prevent the crops from freezing.



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continued to grow in importance during 1952 and underground mining now accounts for less than 15 percent of the total production. Total ore production from the Ray Mines during the year was 3,040,052 tons, of which 1,329,763 tons came from the pit and 710,289 tons from underground, yielding an estimated 49,135 tons of copper.

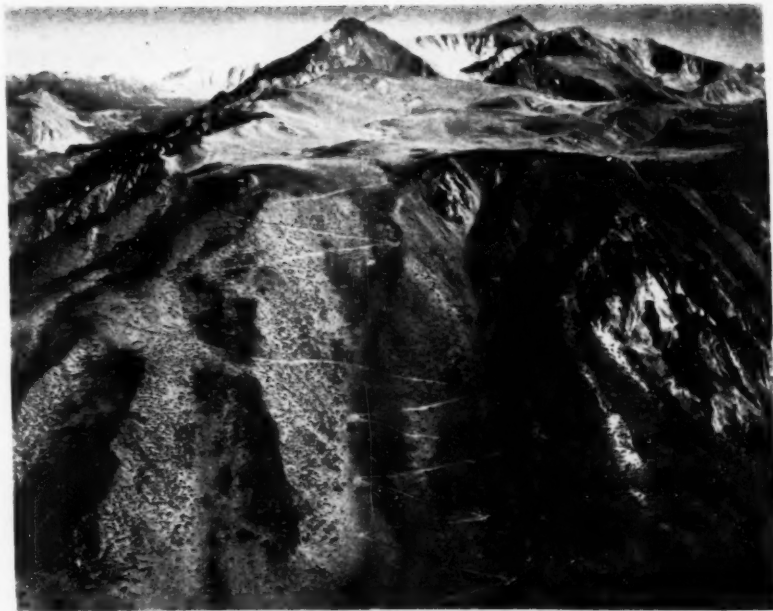
Approximately 65 percent of the ore production at Inspiration Consolidated Copper Company came from open-pit operations, the remaining 35 percent from underground block-caving. Two separate open pits are now under development. The original Live Oak area has supplied much of the open-pit ore to date, but fair progress was made in 1952 in stripping the newer Thornton pit area.

During the year, plans for major expansion and improvement were announced by the Bagdad Copper Corporation, which will increase the company's annual capacity to 35,000,000 pounds of electrolytically refined copper, and 12,000,000 pounds of recoverable copper contained in precipitates. Modernized and enlarged facilities will produce at least 940,000 pounds of molybdenite concentrates per year.

A million-dollar expansion program was launched in 1952 by the Iron King mine of Shattuck-Denn Mining Corporation at Humboldt. Principal features are the sinking of a new four-compartment shaft and installation of a 500 hp. hoist to enable the company to extract ores from a depth of 3,000 feet, 1,200 feet deeper than at present. It also will make possible an increase in production from 18,000 tons monthly to approximately 29,000 tons. The program is scheduled for completion by the end of 1953.

At the end of 1952, approximately 17,000,000 tons of waste overburden had been removed from the Lavender open-pit copper mine being developed by Phelps Dodge Corporation at Bisbee. This tonnage is about one-half the amount which must be removed to bring the mine into ore production. At the close of the year the concentrator and allied facilities were well under way. The concrete work for the concentrator itself had been completed and erection of structural steel started. Tailing thickeners, ore bins, concentrate thickeners, pump house and warehouse were all practically finished. A new pit office, change room, warehouse, and repair shops were completed and in use. It is believed that the Lavender Pit will be brought into the production of copper by early 1955.

Continued development of Arizona's largest ore body, the San Manuel near Tiger, was assured through the approval of a \$94,000,000 loan by the Reconstruction Finance Corporation, and the signing of a copper floor-price contract with



Tungsten mining activity increased in California during 1952. One of the new producers was the Blue Ridge Midway Gold Mines Company, Ltd. which built this switch backed road to its Tip Top mine north of Bishop.

Defense Materials Procurement Agency. At the mine itself, development work was maintained at a consistent rate with a crew of approximately 125 men. Sinking of the No. 1 and No. 2 shafts has been completed, stations cut, and a considerable footage of crosscuts run.

The American Smelting and Refining Company in 1952 launched the \$17,000,000 development of its Silver Bell mine, 45 miles northwest of Tucson. Contracts for the stripping and initial mining went to the Isbell Construction Company, to Utah Construction Company for the townsite, and to Stearns-Roger Manufacturing Company for the concentrator. During 1952 stripping was confined to the Oxide pit, but in 1953 the second pit, El Tiro, will be prepared. Ore reserves at Silver Bell are estimated at approximately 32,000,000 tons of ore assaying 0.9 percent copper. Production is to be at the rate of 7,500 tons daily.

Steady progress was made at its open pit by Copper Cities Mining Company, Miami Copper Company's subsidiary which will replace Castle Dome Copper Company when that ore body is exhausted. The rate of stripping was increased four-fold during the year—from 200,000 tons monthly to 800,000 tons. Work was on a three-shift basis throughout the year. Copper Cities is scheduled

for production late in 1954 with an annual output of 22,500 tons of copper.

The Banner Mining Company of Tucson continued exploration at the Mineral Hill and Copper Glance mines in the Pima mining district during 1952, unwatering these two properties together with the Copper Queen mine. Reopening of these three mines was made possible by two DMEA contracts. The government is participating to the extent of 50 percent of a total expenditure of \$262,578. The Mineral Hill project has been completed and the project at the two Twin Buttes mines will be finished by mid-1953.

The Mineral Hill was reopened to a depth of 700 feet, and the 500, 600 and 700 levels were made accessible. This work proved a considerable tonnage of milling-grade ore containing copper, silver, and small amounts of tungsten and molybdenum. At present the company is taking out about 30 tons of ore per day from the Mineral Hill, the ore coming from development work.

An entirely new development was started on January 1, 1952, when the Pima Mining Company began shaft sinking at its Alpha mine, a copper prospect in the Mineral Hill mining district, south of Tucson. A 425-foot two-compartment shaft was sunk from the surface and stations cut at the 300 and 400 levels.

The government's buying programs for manganese, tungsten, and asbestos stimulated the search for and development of deposits of these minerals during 1952.

For manganese, the Wenden-Aguila-Artillery Peak area was the most active because of General Services Administration's decision to establish an ore-buying station at Wenden. Contract for construction of the sampling and ore-crushing plant was let in October and the station began to receive ores on January 26, 1953. Initial shipments were at the rate of 350 to 400 tons daily.

At the close of the year, Arizona had 18 operating tungsten properties and nine concentrators, three of which were

#### Production of Gold, Silver, Copper, Lead and Zinc in Arizona from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	315,392	7,498,260	326,317	15,638	16,495
1942	253,651	7,064,467	393,387	14,772	18,522
1943	171,810	5,713,889	403,181	13,727	19,677
1944	112,162	4,394,039	358,303	16,707	29,077
1945	75,223	3,558,216	287,205	22,867	40,226
1946	79,024	3,268,765	289,223	25,910	45,665
1947	95,860	4,569,084	366,218	28,566	54,644
1948	109,487	4,837,740	375,121	29,899	54,478
1949	108,993	4,970,736	359,021	33,568	70,658
1950	118,313	5,325,441	403,301	26,383	60,480
1951	116,093	5,120,985	415,870	17,394	52,999
1952	113,500	4,605,500	393,350	16,150	46,000

1. Estimated.



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recycling custom ores. The largest producers were the Tungstona mine of Hillside Mining and Milling Company, and the Black Pearl mine, both of Bagdad. Most of the tungsten ore developed in Arizona is low-grade. Inadequate milling facilities, plus excessive freight rates to suitable out-of-state plants, have limited production despite the government's guaranteed price.

Interest in asbestos centers in the Globe area where four DMEA contracts were granted for asbestos exploration during the year. Approximately a dozen properties in the Globe district were in intermittent operation, producing from 500 to 700 tons of crude ore monthly. This production was milled in seven or eight small plants. Only a very small percentage of the milled product is Crude No. 1, creating a difficult marketing problem for the small producer. To alleviate this condition, Defense Materials Procurement Agency in December announced a purchasing program for Arizona chrysotile asbestos.

Major uranium activity was on the Navajo Indian Reservation in the northeastern corner of the state, where the Atomic Energy Commission has sponsored extensive drilling programs and construction of access roads. The Navajo Uranium Company, increased its output during the year to approximately 3,500 tons of ore monthly. Some production was reported from Hack's Canyon in Mohave County, and a fair tonnage of ore was developed at a property in Gila County.

At the year's end, the greatest interest centered around Kingman, following the discovery of uranium oxide by one of the small producers. As a result, engineers from the Atomic Energy Commission are making an intensive investigation of the entire area, and a sub-office of the exploration branch has been opened in Phoenix.

## CALIFORNIA

### Base, Precious Metals Down; Iron, Mercury, Tungsten Up

The value of California's gold, silver, copper, lead, and zinc production decreased 22 percent from 1951 levels, again due largely to curtailed gold production caused by stable prices and increasing costs. Ore depletion and declining prices adversely affected lead and zinc production. Copper and silver, by-products from lead, zinc, and gold mining reflected decreases in the production of these metals.

Four producers—the Natomas Company, Yuba Consolidated Gold Fields, Idaho Maryland Mines Corporation, and Empire Star Mines Company—produced 70 percent of the state's total gold output.

Important new base-metal developments included the enlargement of the Penn mill by New Penn Mines, Inc., exploration at Anaconda Copper Mining Company's Shoshone group, and the construction of a slag fuming plant at the Selby lead smelter of the American Smelting and Refining Company.

Iron ore production from Kaiser Steel Corporation's Eagle Mountain mine increased nearly 25 percent over 1951 figures and the company began construction of a third blast furnace and brought into production a new tin plate mill at the Fontana steel plant.

## Production of Gold, Silver, Copper, Lead and Zinc in California from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	1,408,793	2,154,188	3,943	3,464	440
1942	847,997	1,450,440	1,058	5,151	613
1943	148,328	609,075	8,762	5,820	1,856
1944	117,373	778,936	12,721	5,682	8,455
1945	147,938	986,798	6,473	7,224	9,923
1946	356,824	1,342,651	4,240	9,923	6,877
1947	431,415	1,597,442	2,407	10,080	5,418
1948	421,473	724,771	481	9,110	5,325
1949	417,231	783,880	649	10,318	7,209
1950	412,118	1,071,917	696	15,831	7,551
1951	339,732	1,145,219	921	13,967	9,602
1952 <sup>1</sup>	253,553	1,107,236	820	10,990	9,360

1. Estimated.

As expected, the state's production of mercury and tungsten increased over 1951. In July, the Defense Minerals Exploration Administration granted an exploration contract to the New Idria Mining & Chemical Company's mercury mine and all phases of production are now under way. Other important mercury developments include a successfully completed diamond drilling program at the California Quicksilver Mines, Inc., furnace installation and reserves development at the Panoche Valley Quicksilver Mines, shaft extension and development by the Sonoma Quicksilver Mines, Inc., and development of recently-discovered orebodies at the Culver Baer mine.

The Pinnacles Tungsten Company, operator of the Round Valley mine, completed a drilling program that uncovered ore deposits now being developed, and the Brownstone Mining Company began operating the Brownstone tungsten mine.

Missouri to increase slightly the annual production of this metal, though declining prices during the last half of the year forced the curtailment of production from marginal deposits. Tri-State lead production sustained a drop of 20 per-

## Production of Lead and Zinc in Missouri from 1941 Through 1952

Year	Lead Tons	Zinc Tons
1941	165,909	21,932
1942	199,548	36,304
1943	184,910	30,413
1944	174,683	36,626
1945	176,575	22,175
1946	159,112	22,234
1947	152,246	17,074
1948	102,288	6,463
1949	127,522	5,911
1950	134,626	8,189
1951	123,702	11,476
1952 <sup>1</sup>	123,958	10,855

1. Estimated.

cent compared with 1951, due largely to decreased output from marginal Kansas properties. Southwest Missouri, on the other hand, actually increased production through the development of two open pit properties—the Quick Seven pit of the American Zinc, Lead & Smelting Company, and the Kelsey Norman pit of the Badgett Mine Stripping Corporation. These two, together with the Potter-Sims Mines, Inc., have made open-

## CENTRAL STATES

### Marginal Production Curtailed, New Properties Opened

Urgent demand and high zinc prices at the start of 1952 enabled the Tri-State district of Oklahoma, Kansas, and

New Idria Mining and Chemical Company carried on a program and explorations at its New Idria mercury mine in San Benito County, California during 1952.





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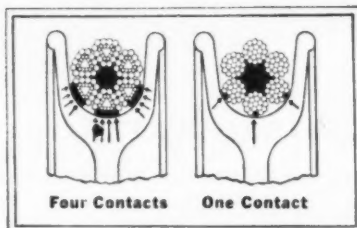
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pit production the major source of lead and zinc in Southwest Missouri.

Southeast Missouri, the nation's major lead producer for the 47th consecutive year, very nearly maintained the 1951 rate of production in spite of dropping prices. Copper production, largely from the Southeast Missouri lead-copper ores, dropped 28 percent under 1951 production due to the change in the lead-copper ratio of the ores. Silver output from these ores, however, increased 112 percent. Gold production, reported only from Texas, remained minor.

Copper output from northern Michigan decreased about 13 percent from 1951 production. The drop was caused by a railroad strike at the Copper Range

### Production of Copper and Iron Ore in Michigan from 1941 Through 1952

Year	Copper	Iron Ore
1941	46,440	15,211,400
1942	45,679	16,529,470
1943	46,764	14,931,400
1944	42,421	15,423,700
1945	30,401	11,865,900
1946	21,663	8,735,800
1947	24,184	12,065,400
1948	27,777	12,896,400
1949	19,506	11,196,000
1950	25,608	12,001,100
1951	24,979	13,705,400
1952 <sup>1</sup>	21,817	11,600,000

\* Gross Tons.

1. Estimated.

Company's Champion mine, and a labor strike at Calumet and Hecla, Inc. (formerly Calumet and Hecla Consolidated Copper Company) properties. The third producer, Quincy Mining Company, operated its reclamation plant at a relatively uniform rate.

Interest was widespread in the development of the new White Pine Copper

### Mine Production of Lead and Zinc in Kansas from 1941 Through 1952

Year	Lead Tons	Zinc Tons
1941	14,538	71,400
1942	9,419	53,874
1943	9,213	56,944
1944	9,394	61,700
1945	7,370	48,704
1946	6,445	47,700
1947	7,285	41,400
1948	8,306	55,500
1949	9,772	70,400
1950	9,487	71,700
1951	8,947	78,800
1952 <sup>1</sup>	5,699	71,400

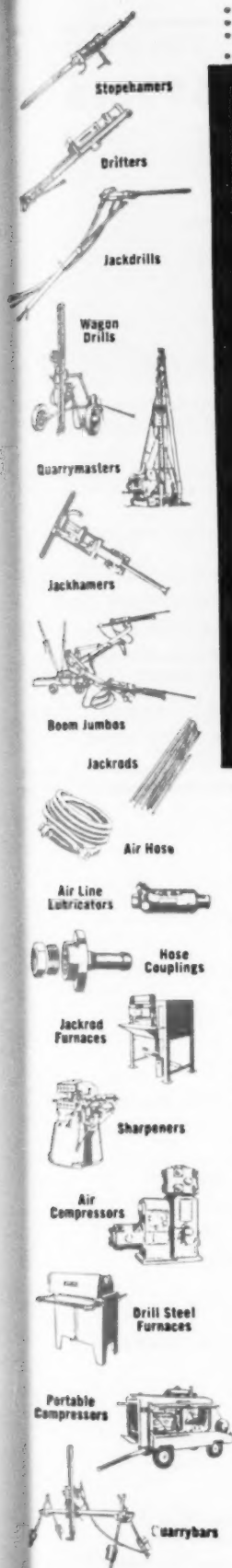
1. Estimated.

Project by the Copper Range Company. Equipment required by this \$57,000,000 program was ordered during the year and actual field work consisted of preparation of plant site, construction of a number of homes, and some foundation work.

Zinc and lead production from Wisconsin increased 28 and 55 percent, respectively, during 1952. Even though many smaller producers ceased operations when prices declined, this increase was made possible when new properties were brought into production by the Vinegar Hill Zinc Company (Muldens mine), the Eagle-Picher Company (Bickett mine), and the Homestead Mining Company (Acme and Rasque mines). However, if prices for lead and zinc decrease further or remain at the present level, the outlook for continued production at the 1952 rate is unfavorable.

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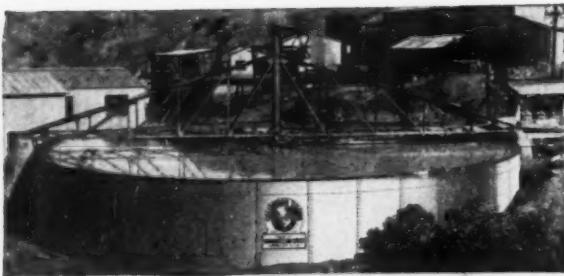


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# Production of Lead and Zinc in Oklahoma from 1941 through 1952

Year	Tons Lead	Tons Zinc
1941	25,021	166,602
1942	22,806	146,510
1943	19,733	114,085
1944	13,944	91,449
1945	12,664	69,300
1946	13,697	69,552
1947	14,289	51,062
1948	16,918	43,821
1949	19,858	44,033
1950	20,724	46,739
1951	16,575	53,450
1952	17,231	59,839

1. Estimated.

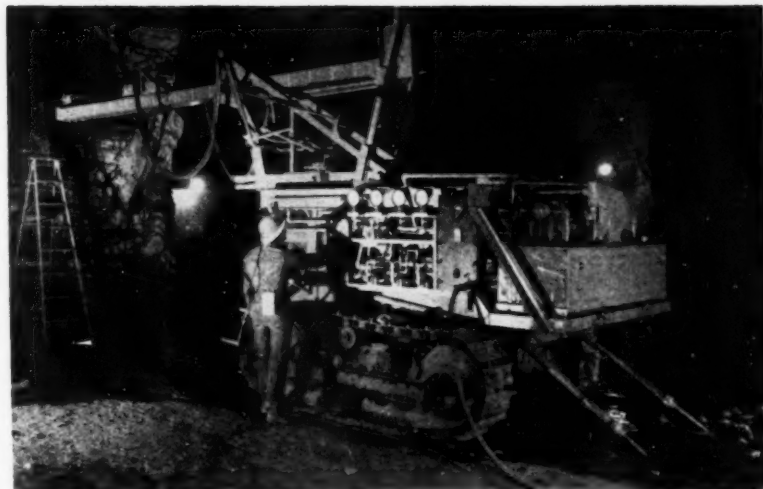
Production of lead and zinc in Illinois during 1952 was the highest in the state's history, a result of continuous output from properties operated by the state's major producers. Zinc production in Kentucky declined slightly and lead output fell off 36 percent, due largely to the effects of local strikes and curtailed fluorspar demand during the steel strike.

## COLORADO

### Uranium, Vanadium Output Up: Low Prices Affect Lead-Zinc

Estimates of the value of mineral production for the year 1952 in Colorado (according to the figures published by the State Bureau of Mines) indicate that the production of uranium and vanadium led the field with an estimated value of about \$50,000,000. Molybdenum, gold, silver, copper, lead, zinc, and other minerals raised the total value to approximately \$144,000,000 for the year.

Mine production of uranium and vanadium increased greatly throughout the Colorado Plateau, enabling the United States Vanadium Company to double the capacity of its Uravan plant, and made possible proposed increases in capacities of other processing plants. The majority of the production still came from the so-called Uravan Mineral Belt of Mesa, Montrose, and San Miguel Counties. The major producing areas of Mesa County were the Calamity, Outlaw, Mesa Creek, and John Brown areas. Montrose County production came from Dolores, Club Mesa, Long Park, East and West Paradox, and the Bull Canyon areas. San Miguel County production came primarily from the Slickrock and Gypsum Valley areas. Tonnage and grade figures are under security regulations so that accurate production and mineral value cannot be given.



The Rifle, Colorado oil shale mine of the U. S. Bureau of Mines continued to be a testing ground for new methods and equipment. Shown here is a tractor-mounted hydraulic rotary drill.

The conflicts between the uranium miners and the United States Atomic Energy Commission and the processing plants reached a peak in 1952 with serious questions regarding sampling practices and various AEC policies. A survey of sampling practices on the Colorado Plateau was conducted by the Colorado School of Mines Research Foundation, Inc., at the request of the miners and the Atomic Energy Commission. The report, issued early in 1953, indicated deviation from standard practice at nearly all of the purchasing depots, although there was no indication of intentional tampering and there were instances in which the seller was benefiting. At the end of the year, the miners were greatly encouraged by the change in attitude of the Commission, which was a direct result of establishing a central office in Grand Junction, Colorado for raw materials procurement.

A problem of great importance to the uranium mining industry arose during the year; namely, the conflict between mining locations and preexisting oil and gas leases. By the year's end, a mutually satisfactory lease arrangement was worked out through the cooperative efforts of the Uranium Ore Producers Association, the U. S. Atomic Energy Commission and the U. S. Department of the Interior. However, it is still hoped that Congressional action will be taken to validate mineral entries when there is a conflict with oil and gas leases.

According to a report of the U. S. Bureau of Mines, the mine production of gold, silver, copper, lead, and zinc in Colorado in 1952 did not vary much

from 1951 in quantity but declined materially in value because of the drop in prices of lead and zinc. The total value of the five metals, based on the average selling price of refined metal, was approximately \$36,000,000 compared with approximately \$39,000,000 in 1951.

The drop in prices of lead and zinc, versus record high wages and other high operating costs, has forced many small producers to shut down. Continued operations at several of the larger mines which are dependent on lower-grade ore reserves is uncertain unless metal prices rise or the cost of production can be reduced.

The U. S. Bureau of Mines lists the principal producing districts in order of output based on total value of the five metals as Red Cliff (Battle Mountain), Upper San Miguel, Leadville, Animas, Rico, Cripple Creek, Creede, Snedells, and White Pine. The Cripple Creek district regained its rank as the state's largest gold producing district as a result of the full year's operation of the New Carlton mill of the Golden Cycle Corporation. The state output of placer gold dropped to the lowest level since 1944 with the shutting down of the dredge of the South Platte Dredging Company.

Preliminary figures for 1952 show a state output (in terms of recoverable metals) of 120,000 fine ounces of gold, 2,815,569 fine ounces of silver, 3,388 short tons of copper, 30,000 short tons of lead, and 53,240 short tons of zinc. Compared with 1951, these figures show increases of 3 percent in gold, 1 percent in silver, and 5 percent in copper, and decreases of 1 percent in lead and 4 percent in zinc.

The large expansion program of the Climax Molybdenum Company at its Climax mine in Lake County is fairly well on schedule. First mining of ore from the new Storke level and its treatment in the new 5,000-ton-per-day mill addition are scheduled for early in 1953. Under a government contract, Climax is scheduled to produce at maximum capacity through 1955. Recent ore production from the Phillipson level, long the mine's main production level, has been 16,000 to 18,000 tons per day.

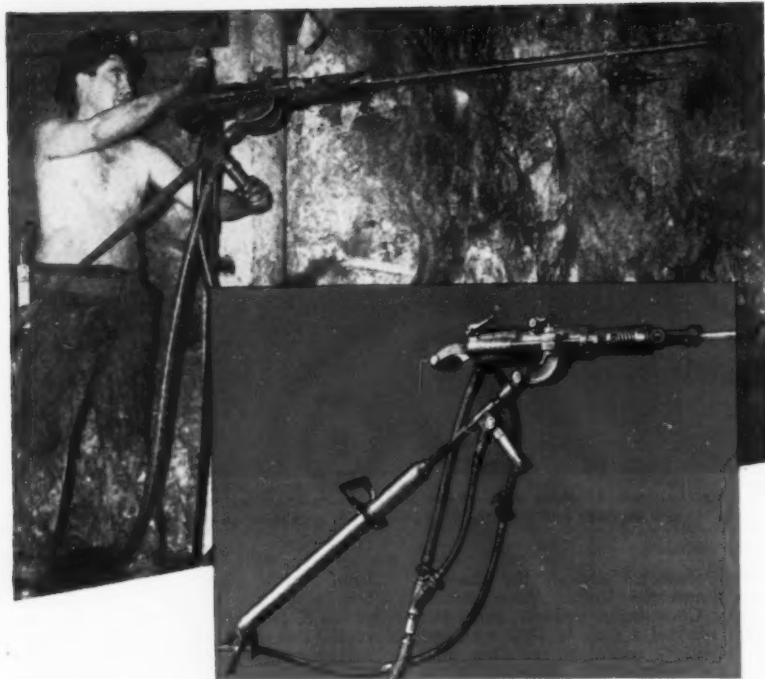
The Boulder County tungsten mines continued to be active. A Defense Minerals Exploration Administration loan in the amount of \$211,080 was granted to

## Production of Gold, Silver, Copper, Lead and Zinc in Colorado from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	380,029	7,301,697	6,748	12,574	15,722
1942	268,627	3,096,211	1,102	15,181	32,215
1943	137,558	2,664,142	1,028	18,032	44,094
1944	111,455	2,248,830	1,048	17,698	39,995
1945	100,935	2,226,780	1,485	17,044	35,773
1946	142,613	2,240,151	1,754	17,036	36,147
1947	168,279	2,557,653	2,150	18,606	38,745
1948	154,802	3,011,011	2,298	25,143	45,164
1949	102,618	2,894,886	2,403	26,853	47,703
1950	130,390	3,492,278	3,141	27,007	45,776
1951	116,503	2,787,882	3,212	30,336	55,714
1952	120,000	2,815,569	3,388	30,000	53,240

1. Estimated.





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*Five out of six mine operators buy \*COPCO rock drilling equipment when they see it demonstrated.*

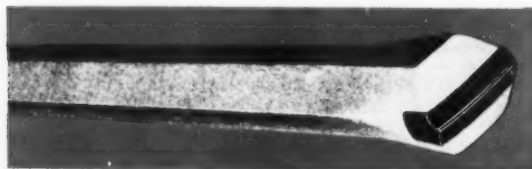
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the Cold Springs Tungsten Company of Boulder. The Silver Bell Mines Company installed a tungsten recovery unit in its mill at Ophir, San Miguel County, to recover the tungsten values from its gold, silver, and lead ore.

## EASTERN STATES

### U<sub>2</sub>O<sub>5</sub> Planned From Phosphate; Tungsten Mining Doubles Output

The three main mining events in the eastern part of United States in 1952 were: 1) With production up to 10,000 units of hubnerite concentrate monthly, Tungsten Mining Corporation became No. 1 U.S. producer of tungsten. 2) Jones & Laughlin Steel Corporation completed a new martite plant and sintering plant. 3) Nearly all Florida phosphate producers worked toward completion of units to extract uranium in a solution process.

At South Strafford, Vermont, Vermont Copper Company continued on a program of improvement.

At its Balmat zinc property in northwestern New York, St. Joseph Lead Company increased mill capacity to 1,850 tons of ore daily (up from 1,200). Also at Balmat, crews finished a 900-foot vertical shaft for men and supplies. At the nearby Edwards mine, crews started to sink an inclined interior shaft from 2,700 feet to 3,100 feet. Edwards' mill capacity remained at 400 tons per day.

Further east, at Star Lake, New York, Jones & Laughlin Steel Corporation had its finest year. The New York Ore Division completed a new martite (non-magnetic ore) concentrator; it produces about 900 daily tons of concentrate; key units in the process are 160 Humphreys spirals. It also completed a 1,200-ton-per-day sinter plant that incorporates a host of new ideas (improvements about sintering).

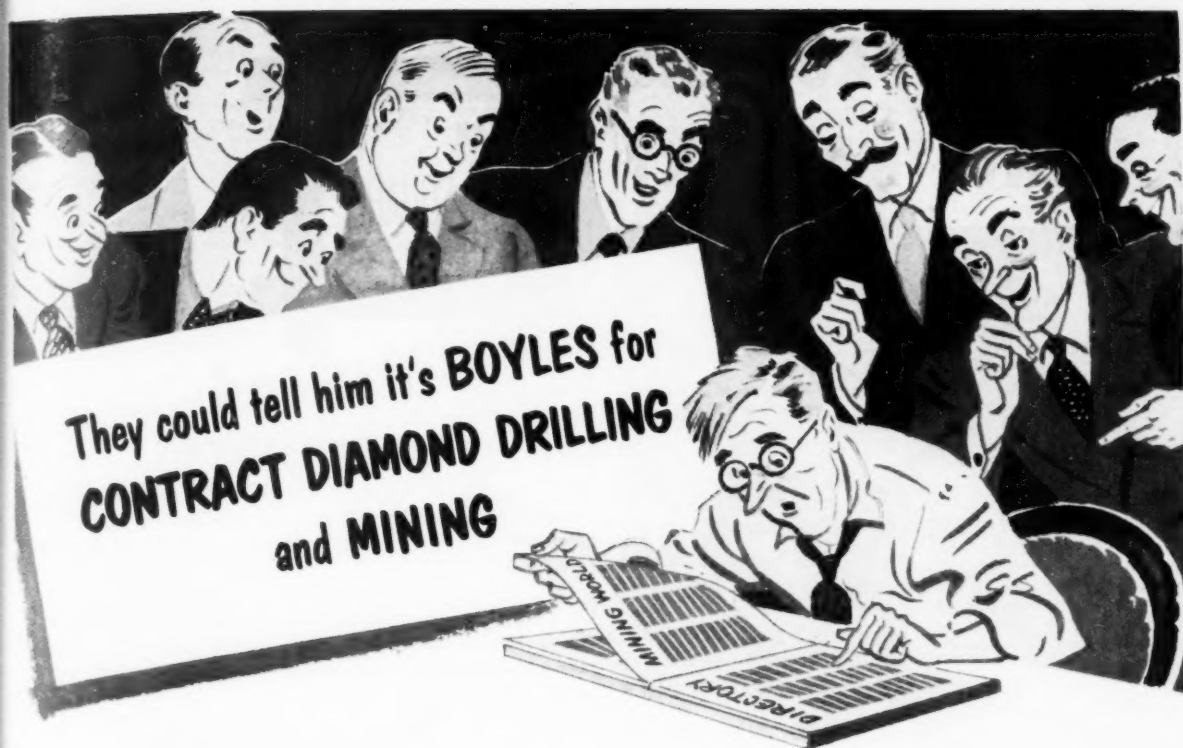
At Tahawus, New York, National Lead Company maintained a high level of production. Daily average: About 950 tons of ilmenite concentrate and 1,800 tons of magnetite concentrate (59 to 60 percent iron) from a mill feed of 4,000 tons.

At Friedensville, Pennsylvania, New Jersey Zinc Company bottomed its new shaft at 1,260 feet, and by year's end had nearly completed construction of the surface plant. At the Ivanhoe mine, in Virginia, crews reached the half-way mark in their shaft-sinking program. At the Sterling mine, Ogdensburg, New Jersey, sinking of a new main shaft was completed.

Tennessee Copper Company finished, and put into operation, a new organic chemical plant during the year. Total production of the Tennessee operation was very slightly greater than in 1951. Up from 1951 was production of copper, sulphuric acid, and iron sinter. Down from 1951 was production of liquid sulphur dioxide, copper sulphate and copper fungicide.

In eastern Tennessee, American Zinc Company of Tennessee ended the year producing 4,000 daily tons of ore from five active mines: No. 2 mine at Mascot, Jarnagin and Athletic mines at Jefferson City; Grasselli and North Friends Station mines near New Market. The company brought its North Friends Station mine into production in mid-1952, and now has it producing 500 daily tons of ore.

MINING WORLD



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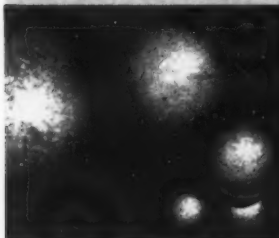
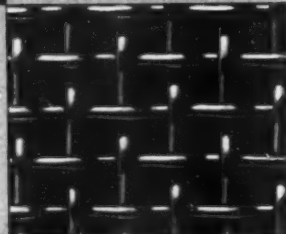


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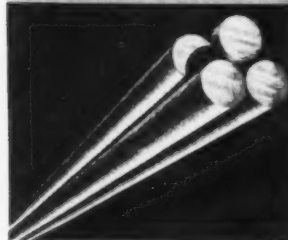


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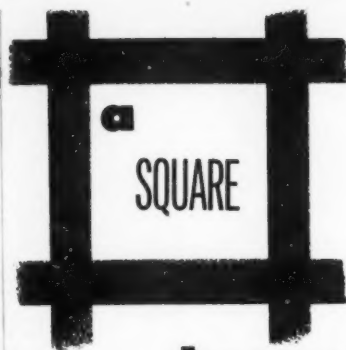
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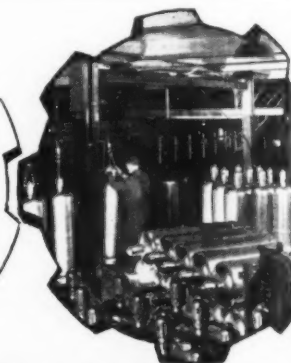
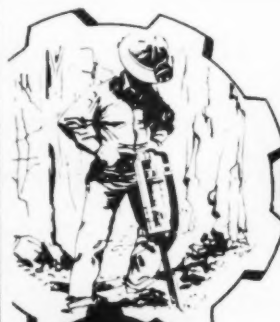
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MINING WORLD



# Production of Gold, Silver, Copper, Lead, and Zinc in New Jersey, New York, Pennsylvania, Vermont, and Virginia in 1951, and 1952

Metal	New Jersey		New York		Pennsylvania		Vermont		Virginia		Totals	
	1951	1952	1951	1952	1951	1952	1951	1952	1951	1952	1951	1952
Gold					1,322				2,355		1,651	
Silver			38,873		9,140		47,015		102,443		95,028	
Copper					14,946 <sup>1</sup>				16,140		14,946	
Lead			1,079						3,901		3,008	
Zinc	58,696		32,150						13,075	110,300	103,921	

1. Fine ounces. 2. Short tons. 3. Includes Pennsylvania, Vermont, and Tennessee.

In the early summer of 1953, the company will start sinking shaft at South Friends Station (its big new ore find); that mine will be known as the Young mine in honor of American Zinc's president, Howard I. Young.

In the Florida phosphate fields, several companies were constructing plants for extraction of uranium as a by-product in chemical phosphate plants. Davison Chemical Company was spending \$24,500,000 for a new superphosphate plant at Bonnie, Florida; the plant was to be complete with uranium recovery section by October 1953. International Minerals & Chemical Corporation had nearly completed its uranium-recovery installation at its operation near Bartow. And late in 1952, Virginia-Carolina Chemical Company started construction of a uranium section at its phosphate plant at Nicols.

At Henderson, North Carolina, in September, Tungsten Mining Corporation completed an expansion of its gravity mill. It now treats 600 tons of hubnerite ore daily (up from 300). By December, the plant was turning out about 10,000 units of hubnerite concentrate per month (up from about 5,000 the year before). And Tungsten Mining, continuing a long-range improvement of its underground mine, hired Utah Construction Company to sink its shaft from 750 feet to 1,100.

Foote Mineral Company was spending \$3,000,000 on a plant to produce spodumene and a little tin. The mine and mill are at Kings Mountain, North Carolina. The lithium chemical plant (which doubles United States capacity to produce lithium chemicals) is going up at Sunbright, Virginia.

## IDAHO

### Favorable Explorations in Coeur d'Alenes; cobalt output up

Idaho's metal mining industry, hampered by lower lead-zinc-antimony prices and a shortage of electric power, produced less ore and paid smaller dividends in 1952 than in 1951.

Exploration and development work continued at a good pace but there were fewer big new exploration projects undertaken and some development programs were curtailed or suspended.

Total value of the zinc, lead, silver, copper and gold mined in Idaho last year declined to \$62,532,730 from \$70,953,653 in 1951. Shoshone County, home of the famed Coeur d'Alene mining region, contributed more than 90 percent of the dollar value. Coeur d'Alene district mines paid \$7,078,936 in dividends, compared with \$8,496,469 in 1951.

Idaho's mines yielded 9 percent less zinc, 6 percent less lead, 25 percent less gold and 1 percent less silver in 1952 than in 1951. Copper output was up 40 percent.

More lead (72,291 tons) was mined than zinc (70,911 tons) but the zinc had greater value (\$23,400,630) than the lead (\$23,133,120). Idaho remained the leading silver producing state for the 19th consecutive year, with production of 14,746,329 ounces, valued at \$13,346,172. Gold production totaled 33,818 ounces for \$1,183,630. Copper output was 3,023 tons, valued at \$1,469,178.

Sullivan Mining Company's Star mine at Burke remained Idaho's leading zinc

mony-gold operations at Stibnite. Stibnite ores accounted for 66 percent of the state's gold production in 1952. Bradley closed its mine, mill and smelter during the summer when heavy antimony imports depressed the domestic antimony price. Bradley had been producing virtually all of this country's antimony.

A Pacific Northwest drought-induced water shortage resulted in cutting off of all interruptible electric energy supplies in September and a 10 percent cut-back in firm power in mid-November. Hardest hit were Bunker Hill & Sullivan Mining and Concentrating Company and Sullivan Mining Company. Sullivan zinc plant production had to be reduced a total 25 percent. Although unaffected by the interruptible power suspension, Bunker Hill mine-mill output had to be reduced 30 percent to meet the firm power cut-back. The Bunker Hill lead smelter, virtually unaffected by the power cutback, late in the year started buying from several British Columbia producers lead concentrates which the Trail, B.C.,

## Production of Gold, Silver, Copper, Lead and Zinc in Idaho from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	149,816	16,672,410	3,621	104,914	79,084
1942	95,020	14,644,890	3,430	113,909	87,256
1943	30,808	11,700,180	2,324	96,457	86,707
1944	25,008	9,931,614	1,688	83,510	91,372
1945	17,780	8,142,667	1,548	68,447	83,465
1946	42,975	6,491,104	1,038	59,987	71,507
1947	64,982	10,345,779	1,640	78,944	83,069
1948	58,434	11,448,875	1,624	88,544	86,267
1949	77,829	10,049,257	1,438	79,299	76,555
1950	79,652	16,095,019	2,107	100,025	87,890
1951	45,064	14,753,023	2,160	76,713	78,121
1952 <sup>1</sup>	33,818	14,746,329	3,023	72,291	70,911

1. Estimated.

producer, accounting for 22 percent of the total. The Bunker Hill and Sullivan Mining and Concentrating Company at Kellogg ranked first in lead production, with 34 percent of the state's total. Sunshine Mining Company continued to be the No. 1 silver producer. Calera Mining Company was the state's principal copper producer, its Blackbird cobalt mine in Lemhi County accounting for 38 percent of total production and being responsible for the sharp increase in Idaho's copper output. The decline in gold production was due principally to closing of Bradley Mining Company's anti-

smelter was unable to handle because of the power shortage.

Bunker Hill and Sullivan put its new ore crushing plant into operation during the year and went ahead with construction of new ore processing facilities. It also started reopening its Crescent mine, former silver producer, which adjoins the Sunshine mine on the west.

Biggest new project undertaken in the Coeur d'Alene district in 1952 was a \$5,000,000 sulphuric acid plant started by Sullivan Mining Company at its electrolytic zinc plant near Kellogg. The plant will produce from 250 to 300 tons

Silver Star-Queens Mines Inc. had a major exploration project underway at its Minnie Moore and Queen of the Hills properties in Blaine County, Idaho during 1952.



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of acid daily from sulphur dioxides given off in roasting zinc concentrates. Completion is scheduled for the end of 1953, or early in 1954. Sullivan also undertook a new 8,500-foot, mill-level haulage adit to the main shaft of its Star zinc mine at Burke, and a major new exploration program at the Silver Mountain group of merged properties east of Mullan.

Polaris Mining Company, a subsidiary of Hecla Mining Company, increased its activities considerably in 1952. It took over Silver Summit Mining Company in a merger and agreed to develop the Purim and Chester areas from the 3000-foot level of the Silver Summit mine shaft.

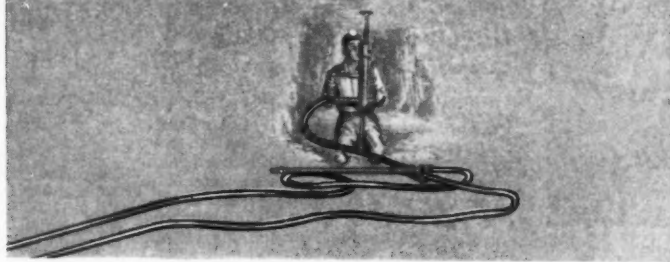
Sunshine Mining company undertook development of Coeur d'Alene Silver Giant Mining Company's Lucky Boy and Giguere groups on Big creek, south of the Sunshine mine. Lucky Friday Silver Lead Mines agreed to develop Hunter Creek Mining Company ground from Lucky Friday workings east of Mullan. American Smelting & Refining Company and Day Mines, Inc., signed an operating agreement covering the Sterling group of claims in the silver belt of the Coeur d'Alenes.

Largest DMEA contract signed in the district in 1952 was \$200,290 for Sidney Mining Company to explore the northwestern part of its ground. Spokane-Idaho Mining Company undertook a \$188,000 lead-zinc exploration project at the old Douglas mine on Pine creek. Hypotheek Mining and Milling Company entered into a \$70,410 contract with the DMEA for zinc-lead exploration in ground acquired from King of Pine Creek Mining Company. Gibbonsville Mining and Exploration Company was granted the Northwest's second RFC production loan for \$62,000 to construct a 400-ton flotation concentrator to recover lead-zinc-silver mill tailing from the Coeur d'Alene river bottom west of Kellogg.

Several ore bodies were discovered during the year in the Coeur d'Alenes. Most important shoots were opened by Sunshine Mining Company at below sea level depths. One was opened in the Omega area of the Polaris vein system, another 500 feet north of the Sunshine vein in a crosscut being driven north from the 3700-foot level to the Silver Syndicate structure. Values were chiefly in silver. Nabob Silver-Lead, Inc., opened high grade zinc-lead ore in a vein south of the Denver structure. Three summers of exploration work in a new lower tunnel paid off for Ione Mining Company with discovery of high grade lead ore in the Summit mining district east of Murray. Lucky Friday Silver Lead Mines' ore body showed great improvement in length on the new 2000-foot bottom level.

Northfield Mining Company of New York, subsidiary of Ventures, Ltd., obtained a \$102,900 cobalt-copper DMEA contract in Lemhi County. McRae Tungsten Corporation undertook a \$53,800 tungsten exploration project in Valles county. Idaho Beryllium and Mica corporation started producing strategic sheet mica at the old Muscovite mine, Deary, Idaho, and started work under a \$28,700 exploration contract. At year-end, 50 DMEA contracts were in force in Idaho.

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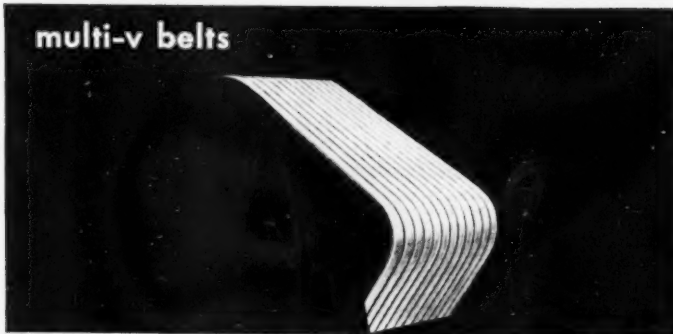
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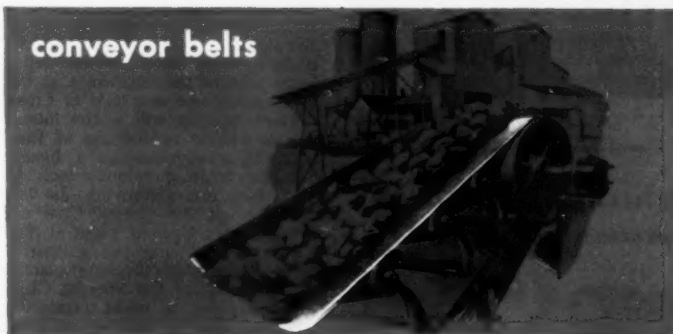
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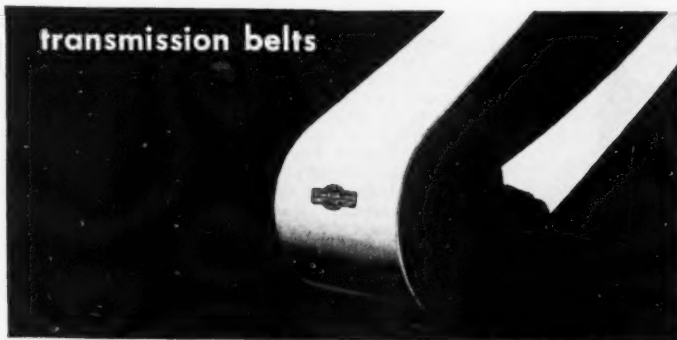
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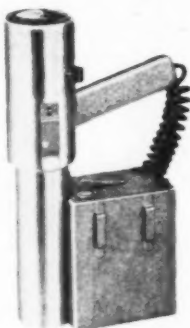
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The most remarkable fact about the iron ore production in the Lake Superior region during the 1952 season was the tremendous tonnage produced and moved to lower lake ports in spite of a strike that tied up production for nearly one quarter of the normal shipping season. Iron ore production was at a virtual standstill from June 22nd to July 26th. Good weather early in the season and late into the fall, however, assisted in overcoming this handicap, along with an increased effort towards maximum production by all properties.

The year 1952 showed a continuation in the trend towards beneficiation of a higher and higher percentage of the iron ore production in the district. The attached tables show the expanding importance of the HMS process in the upgrading of iron ore. Six new HMS plants went into operation during the 1952 season bringing the total in the district to 20. Four additional plants are under construction for operation early in 1953. Of marked interest, was the first entry of Pickands, Mather & Company into the heavy media beneficiation field with two plants—one to be located at the West Hill mine and a second installation to supplement their present jig plant at the Biwabik mine. It is believed that plants built by this company will represent a large part of the expansion in the HMS field during the next two or three years.

More striking still is the interest that has developed in the use of the Dutch State Mines cyclone as a beneficiation machine treating minus-4-inch plus-65-mesh iron ore. Following the two year operation of the Hanna Coal and Ore Corporation's Cyclone plant at the Buckeye mine and one year's operation of the Holman Cliffs cyclone plant at the Holman mine of the Mesaba Cliffs Mining Company, a rapid expansion program has been put into effect. Five additional cyclone plants are under construction at the present time and are expected to start production during the 1953 season.

Taconite development continues to occupy a place of its own in the low-grade ore beneficiation field. While there were no new plants announced, the construction of the Reserve Mining Company Beaver Bay project and the Erie Mining Company project, both running into hundreds of millions of dollars, took steps nearer reality. Announcements were made during the year which indicated that both of these plants should be in at least the preliminary stages of operation in 1955 or 1956.

The Reserve Mining Company plant at Babbitt started operation during the last half of 1952 and data are being gathered on which to base the final flow-sheet and design for the Beaver Bay-project. 1952 represented a year of construction for the Oliver Iron Company as far as its new facilities at Mt. Iron, Minnesota are concerned. This plant is expected to begin operation in April 1953. Concentrates will be shipped to its sintering and nodulizing plant at Virginia, Minnesota. This latter plant has now been in operation over a year and many of the problems connected with the agglomeration of fine iron ore have been finally worked out.

Of notable interest has been the trend towards development of the bodies of the far western end of the Mesabi Range. This development was accentuated during the 1952 season by the opening up of the West Hill mine and the Greenway mine by Pickands, Mather & Company and Jones & Laughlin Steel Corporation, respectively. These mines, along with the Jessie mine which was opened the previous year, represent the furthest extension yet in that direction. Ore at both the West Hill and the Greenway will have to be concentrated before shipping.

Another important new shipper entered the picture on September 29 when Hanna Ore Mining Company started shipments from the Enterprise mine located near Virginia, Minnesota.

On the Cuyuna Range, after several years of difficult stripping, the Rabideau Lake mine started shipments for Pickands, Mather & Company, the operating agents.

Zontelli Brothers, Inc. opened the Manuel mine and completed the construction of a crushing, screening, and washing plant. The same company also completed the installation of a 175-ton-per-hour HMS Mobil mill at its Virginia property during the year, to add additional concentrating capacity.

Of particular interest was the announcement during the latter half of the year that the Defense Minerals Procurement Agency had granted a loan of nearly \$2,000,000 to the Manganese Chemical Corporation for completion of a 200-ton-per-day manganese leaching plant near Riverton, Minnesota. Ore for this plant will be obtained from nearby mining properties. If the process used in this pilot plant is successful, it is expected that a much larger installation will follow. Initial production of the pilot plant is expected during the latter part of 1953.

In Michigan, the majority of the production continues to come from underground mines. The Cayia mine located two miles out of Crystal Falls was opened by the Inland Steel Company, and is expected to add an additional 200,000 tons per year to the production of the district. Other new mines opened during the year are the Cannon, Stambaugh, Peterson, Lawrence, and Loomis. Pickands, Mather & Company is also stripping to open up its Fortune Lake property near Crystal Falls, which will be operated as an open pit.

The Hanna Coal and Ore Corporation pilot plant near Randville, Michigan, completed its test run during the early part of the year, with reportedly successful results. There has been no indication yet of construction starting on the full-scale plant and no announcements have been made as to when it may be expected.

The Ohio mine of the Cleveland-Cliffs Iron Company became the second property to enter the HMS beneficiation field in Michigan. Zontelli Brothers, Inc. have been successfully operating a plant near Ironwood, Michigan for the past three years. This development was somewhat over-shadowed, however, by the interest surrounding the construction of the Humboldt Mining Company's flotation plant a little further to the east on the Marquette Range. Humboldt which is expected to go into operation during the fall of 1953, will, it is felt, point the way towards a number of large concentrating plants on the tremendous deposits of low grade jasper that exist throughout this area.

# IRON ORE SHIPMENTS IN GROSS TONS FROM MINNESOTA, MICHIGAN, AND WISCONSIN BY COMPANIES AND MINES FOR 1950, 1951, AND 1952

Company	Mine	1950	1951	1952	Company	Mine	1950	1951	1952	Company	Mine	1950	1951	1952
<b>E. C. Bradley &amp; Sons*</b>					Richmond	224,168	251,235	117,231		Iron Chief				293
1950 (32,618), 1951 (41,908), 1952 (49,559)					Wakefield			128,323		Sellers				76,953
Bradley	32,618	41,908	49,559		<b>Haley-Young Mining Company</b>					d'Autremont				3,952
					1950 (235,807), 1951 (221,643), 1952 (210,074)					Glen Stockpile		40,607	69,162	
<b>Charleson Iron Mining Company</b>					Minnewas	92,144	90,511	72,155		Walker Group	1,269,915	1,362,440	1,021,826	
1951 (239,578), 1952 (246,496)					Mississippi No. 1			1,074		Aretus Group	459,048	517,013	539,345	
Charleson concentrator					Elbern	143,663	131,132	136,845		King			5,180	
Glen stockpile					<b>Inland Steel Company</b>					West Davis-				
					1950 (1,434,742), 1951 (1,708,608), 1952 (1,510,641)					Geneva	641,960	565,147	604,821	
					Morris	307,357	353,645	294,569		690,521	859,997	804,626		
					Greenwood	86,471	69,695	100,956		Pioneer				
					Bristol	414,618	499,619	433,603		Sibley	318,576	239,687	157,004	
					Armour No. 1	276,461	216,149	148,192		Soudan	186,102	195,545	191,122	
					Armour No. 2	244,818	377,214	333,558						
					<b>Jessie H. Mining Company</b>					<b>Pioneer Mining Company</b>				
					1950 (0), 1951 (149,335), 1952 (125,850)					(Formerly Stanley Mining Co.)				
					Jessie	0	149,335	125,850		1950 (404,835), 1951 (464,820), 1952 (364,489)				
					<b>Jones &amp; Laughlin Steel Corporation</b>					Mary Ellen (Conn.)	404,835	464,820	364,489	
					1950 (3,510,053), 1951 (3,440,018), 1952 (2,771,233)					<b>Pacific Isle Mining Company</b>				
					Hill Annex	751,682	699,843	638,067		1950 (354,878), 1951 (372,929), 1952 (540,857)				
					Wentworth			182,620		The Drew, Croxton-				
					Schley		248,132	230,124		Syme		41,949	41,212	
					Columbia	789,678	683,614	424,893		Dunwoody		556	48,120	
					Missabe Mountain	961	21,884	24,305		Emmett			69,855	
					Longyear	984,586	974,694	720,247		Graham			2,388	
					South Longyear			349,409		Uno Kerr			91,083	
					Saunbury	263,784	205,696	200,970		Lamberton	160,066	31,520	3,083	
					Graham			598		Missouri				
					<b>Globe Iron Company</b>					Mountain			2,918	10,047
					1951 (38,777), 1952 (44,596)					North Shiras			43,364	89,444
					Cornell		39,777	44,596		Shiras			1,188	5,366
					<b>W. S. Moore Company</b>					Wacootah				32,347
					1950 (632,105), 1951 (959,771), 1952 (672,312)					York	132,772	77,247	147,912	
					Margaret		10,234	71,280		<b>Pickands Mather &amp; Company</b>				
					Missouri stockpile		13,095	15,117		1950 (12,775,099), 1951 (14,317,634), 1952 (12,448,217)				
					Hanna	105,132	101,406	50,291		Erie (Taconite)		59,209	130,678	93,867
					Judson		109,507	153,842		Embarras	1,201,503	1,480,733	1,059,500	
					Pilot-Anney	18,763	150,767	11,736		Biswabisk		252,546	248,490	185,678
					Pilot			159,598		Corsica		332,718	382,267	284,215
					Prindle	291,566	281,668	189,269		Wade		396,236	436,665	293,314
					Yawkey	60,765	35,323	21,179		Albany		298,218	386,986	303,561
					<b>North Range Mining Company</b>					Seranton		1,366,869	950,840	731,862
					1950 (397,357), 1951 (559,548), 1952 (738,920)					Mahoning		2,640,657	3,454,649	3,014,717
					Blucherry		195,764	208,853	213,660	Carmi				515,098
					Champion		125,680	183,910	176,786	Bennett		597,796	614,154	471,789
					Book		75,913	128,111	207,712	Danube		530,844	758,204	565,472
					Warner			38,674	140,757	Rabbit Lake				147,848
					<b>Oglebay Norton &amp; Co.</b>					Mahonomen		246,885	515,149	413,142
					1950 (1,535,732), 1951 (1,133,234), 1952 (1,973,263)					Sagamore		426,825	434,991	346,810
					Montreal		1,102,828	1,133,234	948,962	Cary		598,791	611,832	536,776
					St James				372,259	Newport		697,643	617,643	512,220
					Canton (U.S. Steel Corp.)				651,881	Peterson				35,529
					<b>Oliver Iron Mining Division</b>					Anvil-Palms-				
					1950 (35,194,541), 1951 (43,992,961), 1952 (34,456,449)					Keewenaw		546,942	694,810	521,241
					Mountain Iron					Plymouth		371,459	223,027	310,845
					Group	2,857,474	3,820,002	2,643,509		Sunday Lake		513,435	460,959	422,155
					Mott S.P. #54	216,545	299,708	27,052		Vindicator		113,615	134,838	67,119
					Rouelleux					Davidson		337,969	423,385	302,640
					Group	5,127,553	6,034,380	4,667,948		James		179,121	213,832	158,903
					Auburn Group					Buck Unit		435,687	638,482	644,649
					Spurce U. G.	266,195	247,961	175,668		<b>Republic Steel Corporation</b>				
					Spurce O. P.	1,667,298	2,203,825	1,504,376		1950 (1,862,242), 1951 (2,271,973), 1952 (1,890,397)				
					Fayal O. P.	533,218	756,264	663,535		Susquehanna	888,650	999,267	802,343	
					Canton	1,504,042	1,972,044	1,596,048		St Paul		302,862	247,226	
					St. James					Stevenson		147,158	148,676	
					Gilbert	2,015,376	2,004,399	1,403,417		Ponokee	566,599	529,253	408,195	
					Burns		399,042	28,158		Tobin	406,991	293,433	283,957	
					Knock		251,462	248,833		<b>Rhude &amp; Fryberger Company</b>				
					Saunbury	364,042	298,403	374,975		1950 (307,368), 1951 (331,034), 1952 (423,366)				
					Hull-Rust					Pennington		184,178	221,019	260,239
					Group	5,715,162	5,787,727	3,084,116		Troy		106,641	102,906	121,005
					Morris Group	403,570	260,379	165,911		Seville		16,551	7,114	39,174
					Pillsbury	270,624	216,821	177,543		South Hillcrest				2,948
					Monroe Group	2,658,719	3,270,497	2,315,604		<b>Snyder Mining Company</b>				
					Sherman Group	5,819,277	8,556,115	7,510,531		1950 (852,995), 1951 (1,017,224), 1952 (609,235)				
					Godfrey U.G.	611,776	581,847	552,005		Webb		523,094	615,567	388,075
					Fraser U.G.		77,316	200,105		Shenango		120,283	115,210	129,509
					Midway Group		297,315	170,276		Whiteside			1,947	91,651
					Kosmersly		3,840			<b>Zontelli Brothers, Inc.</b>				
					Pillsbury		66,309	14,796		1950 (261,726), 1951 (380,315), 1952 (491,315)				
					Niles			33,259		Virginia		215,212	220,978	131,613
					Dormer			355,181		Mangan-Joan			41,669	99,943
					Sharon			1,728		Martin		12,485	5,625	837
										Merritt			33,781	14,187
										Hillcrest				3,803
										Gorman				75,917
										Manuel				98,518
										Graham No. 1				598
										Ironwood concentrator			78,262	65,899

The year 1952 represented a large expansion in milling capacity on the iron ranges. This trend is expected to continue as long as demand for iron ore holds. Producers are looking forward to the largest shipments in history during the 1953 season, much of which will have to come from these new beneficiation plants. The millions of dollars being invested in these plants seem to belie the often heard comments that the Mesabi and adjacent ranges will soon be replaced by iron ore production from other areas.

### Production of Gold, Silver, Copper, Lead and Zinc in Montana from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	246,475	12,386,925	128,036	21,259	40,710
1942	146,892	11,188,118	141,194	20,050	54,713
1943	59,586	8,450,370	134,525	16,324	37,598
1944	50,021	7,093,215	118,190	13,105	36,112
1945	44,597	5,942,070	88,506	9,999	17,401
1946	70,507	3,273,140	58,481	8,280	16,770
1947	90,124	6,326,190	57,900	16,105	43,670
1948	73,091	6,930,716	58,252	18,411	50,093
1949	52,274	6,327,025	56,611	17,996	54,191
1950	51,764	6,590,747	54,478	19,617	67,074
1951	30,502	6,393,768	57,406	21,302	73,594
1952 <sup>1</sup>	28,671	6,138,114	63,320	21,131	81,834

1. Estimated.

## MONTANA

### Greater Butte Holsts 10,000 Tons Daily; WO<sub>3</sub> Discoveries

Montana mines in 1952 yielded \$71,099,448 worth of copper, zinc, lead, silver, and gold, according to preliminary annual figures of the United States Bureau of Mines. This is a gain of more than 2 percent over 1951 despite lower prices for zinc and lead.

Credit for the showing goes to Anaconda Copper Mining Company, which substantially increased production at its Greater Butte project. Anaconda's operations in Silver Bow County accounted for 97 percent of the copper, 92 percent of the zinc, 88 percent of the silver, 76 percent of the lead and 55 percent of the gold produced in Montana.

Montana's zinc production increased 8 percent to the highest annual level since 1928 and for the second consecutive year exceeded the state's copper output.

Value of the copper, however, was well above that of the zinc.

Zinc production totaled 81,834 tons, valued at \$27,005,220. Copper output, up 10 percent from 1951, totaled 63,320 tons, valued at \$30,773,520.

Lead output decreased less than 1 percent to 21,131 tons, worth \$6,761,920. Silver production was down 4 percent to 6,138,114 fine ounces, valued at \$5,555,303. Gold output slipped 6 percent to 28,671 fine ounces, worth \$1,003,485.

Part of the lead decrease resulted from America Smelting and Refining Company's closing of the Mike Horse mine in Lewis and Clark County and lower output from the Jack Waite mine in Sanders County.

The decline in silver production was due largely to a lower yield of silver from the zinc and dump ore mined at the Butte Hill operations of Anaconda Copper Mining Company.

Gold mining activity in Montana con-

tinued to decline because of increasing operational costs without a corresponding increase in the price of gold. McLaren Gold Mines Company's Estelle mines in the New World mining district of Park County accounted for 18 percent of the state's 1952 gold output.

Anaconda completed arrangements for construction of a \$45,000,000 aluminum plant at Columbia Falls, Flathead County. It also obtained a DPA certificate of necessity to construct a \$1,428,800 sulphuric acid plant. It boosted production from the Kelley shaft of its Greater Butte project to near 10,000 tons daily and started work on a supply shaft which would permit Kelley production to be increased to 15,000 tons daily. Its development work in the Elm Orlu-Black Rock area of Butte hill continued to prove and expand low grade zinc reserves. The firm also investigated large undeveloped areas of the Butte district with most encouraging results.

Important developments in chrome, tungsten, fluorspar and asbestos marked the Montana mining scene in 1952.

American Chrome Company moved to reopen the Mouat chrome mine, Stillwater County, developed by Anaconda Copper Mining Company during World War II for the government and then closed. DMPA agreed to provide \$2,825,000 for rehabilitating and re-equipping the mine, mill and camp, and agreed to purchase 900,000 tons of chrome concentrates. Operating capital was to be furnished by Goldfield Consolidated Mines Company of Reno, Nev., parent company of American Chrome.

Minerals Engineering Company, Grand Junction, Colo., started tunneling under two big surface tungsten deposits at Lost creek, 46 miles south of Butte, aided by a \$111,280 DMEA exploration contract. In the nearby Browns lake area, American Alloy Metals, Inc., blocked out a large tonnage of tungsten ore with new underground workings.

United States Steel Company started shipping 250 tons of fluorite daily from an open-pit operation in the Rye Creek hills southeast of Darby, to its Geneva, Utah, mills.

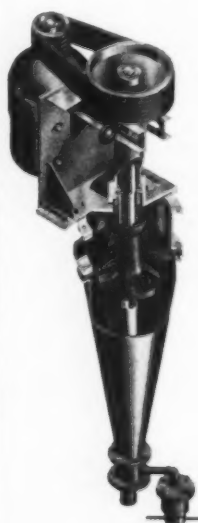
Madisonian Mining Milling Company of Bozeman opened a promising deposit of chrysotile asbestos in Madison County.

Trout Mining division of American Machine and Metals, Inc., equipped its Philipsburg mill to turn out a manganese-carbonate concentrate along with silver-zinc and silver-lead concentrates. Coronado Copper & Zinc Company acquired several mining properties in the Butte district. Mitchell Mining Company increased its manganese mining facilities at the Margaret Ann mine at the outskirts of Butte. Some uranium shipments were made from Clancy area, near Helena.

The old Tarbox and Meadow Mountain properties near Saltese were leased

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by Mineral King Mining Company of Missoula to Federal Mining and Smelting Company of Wallace. The old Iron Mountain mine north of Superior was placed in production by E. G. Smith, Oshum, Idaho, lessee. Zinc-lead-silver ore was treated at the Nancy Lee mill west of Superior.

Caledonia Silver-Lead Mining Company of Kellogg, Idaho, optioned the Kendall, Barnes-King, Santiago, North Moccasin, Mule Shoe and Horse Shoe gold mines in the North Moccasin mining district of Judith Basin County. Lexington Silver-Lead Mines, Inc., at Niehart, milled some dump ore and developed some mine ore. In Jefferson County, John Guilio of Fuller started exploration at the Silver Hill mine under a \$20,600 DMEA contract. Western Montana Exploration and Development Company explored the Durand lead-zinc claims near Hall, under a \$66,500 DMEA contract.

Kootenay Copper Mines started work at the Green Mountain Mining Company property in Sanders County under a \$31,900 DMEA contract. Sylvan Gold Mining Company's property near Basin, was the scene of a discovery by government engineers of a radioactive zone in a gold-silver vein. In Granite County, tungsten development was carried on at the Black Pine, Argo and Alps properties. Forty-three DMEA contracts were in force in Montana at year's end. The state continued to be a leading producer of vermiculite. Production of phosphate rock, limestone, gypsum and talc continued at good rates.

## NEW MEXICO

### Potash, Copper, Lead, Zinc Output Up; New Potash Cos.

New Mexico reported a record-breaking production of minerals during 1951 with a value increase of 11 percent over the previous year.

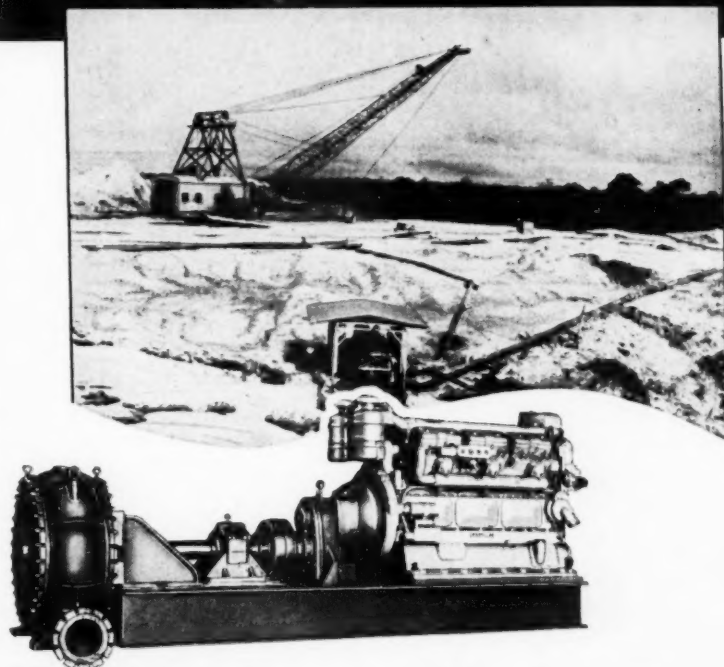
New Mexico, as usual, led the nation in potash production, supplying more than 90 percent of the United States total. The state also was first in the production of beryllium concentrates and pumice. It ranked second in perlite production, and third in production of molybdenum concentrates, copper, fluor-spar, and lithium minerals.

Breakdown by counties shows that Grant County ranks first in total metals production, with a total valuation of \$52,476,805. Socorro County was second with \$1,852,906. In non-metallic products, other than coal, Eddy County led, with \$36,136,777. In this classification also, Socorro County was next, with \$262,290.

Copper production led the metal field with 77,000 tons. This was an increase of 3,442 tons over 1951. If the present demand for copper continues, and the price remains the same with no work stoppages, copper production for 1953 is estimated to reach about 80,000 tons.

In the non-metallic field, potash ranked first with a volume of 7,017,814 tons valued at \$36,117,201. This was an increase of 974,478 tons over the previous year. Part of this increase is attributed to Duval Sulphur & Potash Co., who began hoisting ore in March. With another new firm, Southwest Potash Corporation, now in operation, potash production is expected to top 10,000,000 tons in 1953. Exploratory work is being continued by a

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# Production of Gold, Silver, Copper, Lead and Zinc in New Mexico from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	27,845	1,328,317	73,478	4,668	37,862
1942	11,961	676,170	80,100	4,608	46,461
1943	5,563	463,583	76,163	5,723	59,524
1944	6,918	535,275	69,730	7,265	50,727
1945	5,604	465,127	56,571	7,662	40,295
1946	4,009	338,000	50,191	4,899	36,103
1947	3,146	515,833	60,205	6,383	44,103
1948	3,414	537,674	74,687	7,653	41,502
1949	3,249	380,855	55,388	4,652	29,346
1950	3,414	338,581	66,300	4,130	29,263
1951	3,959	443,267	73,558	5,846	45,419
1952 <sup>1</sup>	2,900	500,000	77,000	6,880	51,400

1. Estimated.

sixth firm in the Carlsbad area, Freeport Sulphur & Potash Company; and core drilling was scheduled in Lea County by a seventh firm, American Potash and Chemical Corporation.

Potash is certain to continue important contributions to the economy of New Mexico, and probably will improve its position in the market as it has in the past. The industry has succeeded in keeping its own market price at a level almost equal to that in force in 1938, by expanding production through increased mechanization and improvement of processes. New Mexico is fortunate to have an industry whose management reflects such a high degree of economic stability.

Pumice, in spite of a decrease of 143,923 tons as compared with the previous year, was second in non-metallic production with 274,121 tons valued at \$694,736.

Perlite, although only in its fourth year of production, continued to gain with

68,345 tons valued at \$298,584., an increase of 21,779 tons over the previous year. A new firm, Schundler Perlite Company. No. Agua, New Mexico, started operations in February 1952. The Pumice Corporation of America was sold to the U. S. Gypsum Corporation as the year ended and will use the plant in the production of perlite. U. S. Gypsum purchased large holdings of perlite in the Grants area near this plant in the fall of 1952. With these two new operations, the perlite production outlook is very favorable for 1953.

Fluorspar production increased in value over the previous year, with a total of 19,426 tons valued at \$650,146. The major producers of this mineral were in Grant and Valencia counties.

Strategic minerals are being produced in large volumes, principally uranium, beryl, and manganese. A mill to process uranium ore is being completed near Bluewater, by the Anaconda Copper Min-

ing Company. With the completion of the mill large tonnages of low grade uranium ores will be produced in the Grants mining district.

Including the construction of the Duval Sulphur & Potash Company plant, the mines of the state expended \$11,510,753 for underground improvements, new surface construction, and new mining equipment.

A total of 3,593 persons were employed by the metal mines in the state. This was an increase of 484 over the previous year. Of these 1,276 worked in mills, 900 underground, 1,194 on the surface, and 223 in other jobs. Non-metallic mines employed a total of 3,530 persons, an increase of 414 employees over the previous year.

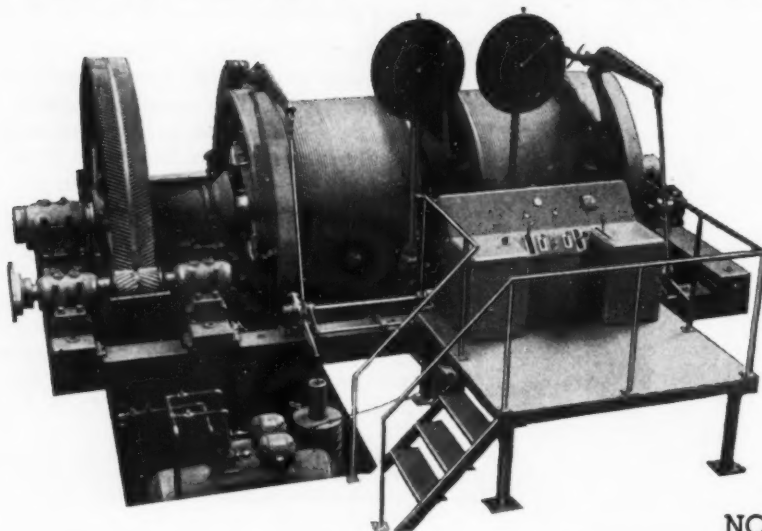
With new activity in uranium and perlite production in the Grants area, expansion of potash companies into Lea County as well as increased activity by new companies in Eddy County, it appears that New Mexico will break more records in mineral production in 1953.

## NEVADA

### Copper Output on the Increase; 2,000,000 Tons Iron Ore Mined

Copper output was greater in Nevada in 1952 over 1951 as the Nevada Mines Division of the Kennecott Copper Corporation increased production at its two open-pit mines in White Pine County. The Division also milled ore from the two open pits of the Consolidated Copper Mines Corporation and treated an average of 18,500 tons daily. The expan-

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MINING WORLD

# Production of Gold, Silver, Copper, Lead and Zinc in Nevada from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	366,403	5,830,238	78,911	9,623	15,129
1942	295,112	3,723,435	83,663	5,378	10,197
1943	144,442	1,620,280	71,068	4,790	13,647
1944	119,056	1,259,636	61,232	6,605	20,699
1945	92,265	1,043,380	52,595	6,275	21,457
1946	90,680	1,250,651	48,616	7,175	22,649
1947	89,063	1,337,579	49,603	7,161	16,970
1948	111,532	1,790,020	45,242	9,777	20,288
1949	130,399	1,800,209	38,058	10,626	20,443
1950	178,447	1,537,217	52,569	9,408	21,606
1951	121,036	981,669	56,474	7,148	17,443
1952 <sup>1</sup>	117,080	944,268	57,040	6,880	15,600

1. Estimated.

sion of milling and smelting facilities at McGill continued and surface work for the Deep Ruth project was almost completed by Foley Brothers, Inc., contractors. Foley is also contracting the sinking of the Deep Ruth and Kellinski shafts. Heavy water inflows slowed sinking at the Ruth shaft.

Anaconda Copper Mining Company made rapid strides toward placing its open-pit Yerrington mine and leaching plant in production. Stripping of the ore-body continued during the year and some ore was mined and stockpiled awaiting plant completion. The 11,000-ton-per-day leaching plant is scheduled to produce 30,000 tons of copper annually. The company completed the new town of Weed Heights to house employees and plant warehouse and service buildings.

Combined Metals Reduction Company operating mines and mills in the Pioche district was again the state's leading zinc and lead producer. The company's \$4,000,000 expansion program was nearly completed during the year. Manganese concentrate will be recovered from the complex Pioche ores and electric-furnaced to ferromanganese in newly installed furnaces at the World War II Basic Magnesium plant at Henderson. Combined Metals' subsidiary, Pioche Manganese Company, will operate the Henderson plant and a new nodulizing kiln at Pioche. Combined Metals added mine equipment and increased the daily capacity of its Castleton flotation plant to 2,000 tons per day.

Nevada production of iron ore during the year rose to a record high of more than 2,000,000 tons with most of it shipped to Japan. Leading iron producers with mines in Pershing, Elko, and Lander counties were the Simplot Iron Mines, Inc., Mineral Materials Company, Dodge Construction Company, Nevada Iron Ore Company, and American Ore Company.

The Kaiser Aluminum and Chemical Corporation built a new 100-ton-per-day fluorspar flotation plant at Fallon to treat ore trucked from the corporation's Baxter mine near Gabbs. Ore from other nearby mines was also treated.

At the world-famous silver camp of Tonopah, the Tonopah Development Company developed an important silver-gold vein on the 300-foot level of its King Tonopah shaft. At year's end, plans had been completed for wining to determine the extent of ore in depth.

The Nevada-Massachusetts Mining Company operated its open-pit and underground tungsten mines and flotation plant near Lovelock during the year. This is one of the major domestic tungsten producers. Getchell Mines, Inc. resumed tungsten mining and milling on a large scale at its Getchell mine. Its gold mining operations were discontinued.

Getchell treated custom tungsten ore for a number of producers, the most important of which was the United States Vanadium Company which shipped 200 tons per day from its open-pit Riley mine.

## OREGON

### Hanna Announces Nickel Plans; Chrome Mining Shows Increase

Gold mining in Oregon reached an all-time low in 1952. Only 5,414 ounces valued at \$189,490 were recovered. This contrasts with \$4,000,000 in 1940. Placer mining accounted for more than 90 percent of the production and nearly all came from the dredge of the Powder River Dredging Company, Baker County. About 40 small hydraulic mines were active in Josephine, Jackson, Grant and Baker counties when water was available. Gold lode mining is nearly nonexistent. A small amount of ore from the Buffalo mine in Grant County and the Champion mine in Lane County was shipped to the Tacoma Smelter. Underground exploration work was done at the Silver Peak mine south of Riddle in Douglas County and at the Ruth mine of the Pacific Mining and Smelting Company on the Little North Santiam River in Marion County.

Mining and shipping of chrome ore to the government purchasing depot at Grants Pass occupied the center of the stage in the State's mining activity. Producers got a late start because of excessive snow in the mountains, and weather conditions forced some producers to close down in November. About 15 small mills have been built or adapted to chrome concentration and their output has formed an important part of the receipts at the purchasing depot. Two mills in the John Day area of Grant County shipped concentrates by truck from John Day to Grants Pass at a cost of \$20.00 per ton. *Mineral Market Reports* of the U. S. Bureau of Mines indicate that during the

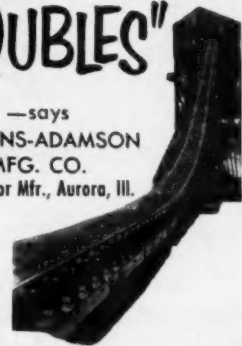
### Mine Production of Gold and Silver in Oregon from 1941 Through 1952

Year	Gold Ounces	Silver Ounces
1941	96,565	276,158
1942	46,233	87,376
1943	1,097	10,527
1944	1,369	20,243
1945	4,467	10,461
1946	17,598	6,927
1947	18,979	30,379
1948	14,611	13,596
1949	16,226	12,195
1950	11,058	13,565
1951	7,927	6,218
1952 <sup>1</sup>	5,414	3,940

1. Estimated.

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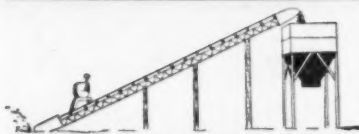
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first 10 months of 1952, 13,652 short tons of chrome was produced in California and Oregon.

Mercury production was principally confined to one mine, the Bonanza, in Douglas County which operated throughout the year. The Maury Mountain mine in Crook County produced some mercury with a retort late in the year. The Roba prospect in Grant County produced a few flasks of mercury early in the year.

The Hanna Development Company continued extensive exploration work on the Nickel Mountain deposit in Douglas County throughout the first part of the year, and late in 1952 concluded contracts with the federal government for the installation of a plant and the production of ferronickel. As announced, the government contract calls for production of a minimum of 95,000,000 pounds of nickel in ferronickel, the first 5,000,000 pounds of which is to be paid for at a price not to exceed 79.39 cents per pound and the balance at 60.5 cents per pound. No exploration work was done on the high-iron bauxite deposits owned by Alcoa Mining Company.

Prospecting for asbestos, tungsten, antimony, and manganese was carried out during the year in Baker, Grant, Josephine, and Jackson counties.

The Orr Engineering and Chemical Company, Portland, Oregon, continued to treat limonite ore in a plant at Scappoose in Columbia County to activate the limonite for use in removing sulphur from manufactured gas.

The limestone quarries of the Oregon Portland Cement Company at Lime in Baker County and Dallas in Polk County, and the Pacific Portland Cement Company at Marble Mountain in Josephine County, were active throughout the year. Limestone was quarried at the Enterprise quarry in Walla Walla County by the Pacific Carbide and Alloys Company for use in making calcium carbide.

Construction was somewhat slack the first part of the year and then increased in the second part and demand for sand, gravel and crushed rock corresponded with construction activity. The dollar value has not yet been reported by the Bureau of Mines. Expanded shale used as lightweight concrete aggregate made in two plants, one in Portland and one near Sunset Tunnel in Washington County, was in increasing demand throughout the year.

Demand for crushed quartz and granite for poultry grit was good. A greater demand for quartz was evident because of expanding ferrosilicon and silicon carbide manufacture.

Early in the year the perlite quarry and plant of Dant & Russell, Inc., Dantore Division, south of Maupin on the Deschutes River, was bought by Kaiser Gypsum Company. Production of perlite plaster sand continued as before.

The Great Lakes Carbon Corporation operated the diatomite quarry and plant on the Deschutes River near Terrebonne throughout the year.

Production of pumice aggregate used mainly in blocks and concrete pipe continued about as in 1951.

## SOUTH DAKOTA

### Gold Production Increases; Pegmatite Mining Active

South Dakota produced 484,556 ounces of gold and 141,401 ounces of silver in 1952 for a total value of \$17,-

088,075. The 1951 figures were 458,101 ounces of gold and 139,900 ounces of silver totaling \$16,160,560.

The Homestake Mining Company at Lead, the largest producer of gold and silver, treated an estimated 1,209,884 tons of ore or 163,681 tons more than in 1951. Construction of crushing plants at the Yates and Ross shafts, the latter being completed in 1952, together with changes in the grinding section of the mill will allow the company to discontinue using stamps. Sixty stamps have already been taken out of the mill.

The Bald Mountain Mining Company of Trojan, the only other producer of gold and silver in the state, operated continuously during the year but with a slight decrease in output from 1951.

The Pegmatite mining industry of South Dakota showed a considerable growth during the year, particularly in the production of spodumene. The production of spodumene in 1952 was estimated to be 7,500 tons. Three flotation plants were placed in operation during the year for the treatment of lithium-bearing pegmatites for spodumene. These plants were the Lithium Corporation of America at Hill City, the Black Hills Tin Company at Tinton, and the Holy Ter-

### Production of Gold and Silver in South Dakota from 1941 through 1952

Year	Gold Ounces	Silver Ounces
1941	600,637	170,771
1942	522,098	186,937
1943	106,444	35,884
1944	11,621	5,445
1945	35,948	86,501
1946	312,247	26,384
1947	407,194	111,484
1948	377,850	94,693
1949	464,650	109,183
1950	567,996	142,600
1951	458,101	139,900
1952 <sup>1</sup>	484,556	141,401

1. Estimated.

ror Mining Company at Keystone. This industry was further aided by the establishment of mica and beryl buying stations at Custer, and also by the DMEA which assisted in financing exploration for mica, beryl, tantalite and columbite to the extent of approximately \$200,000.

The International Minerals and Chemical Corporation acquired the properties of the Consolidated Feldspar Corporation in a transaction consummated at the close of the year. The latter corporation has been the major producer of feldspar in the state, operating several mines and two grinding plants located at Keystone and Custer. The production of feldspar is estimated to be not more than 40,000 tons in 1952 as mining operations were hampered by a labor shortage throughout the year.

The uranium deposits discovered in the Craven Canyon area in 1951 were investigated in detail by the AEC and several companies during the year. To provide impetus for the development of this area, an ore buying station was built near Edgemont by the American Smelting and Refining Company under contract to the AEC. The United States Vanadium Company, Livingston Uranium Corporation, and the Homestake Mining Company were the principal companies operating in the area.

The bentonite production figures for 1952 are not available but it is believed that it will be small in comparison with previous years as the majority of the South Dakota bentonite has been mined

MINING WORLD

out and the two processing plants in the state located near Belle Fourche are getting their bentonite from Wyoming. These producers are the American Colloid Company and the International Minerals and Chemicals Corporation. The latter acquired the plant and facilities of the Eastern Clay Products, Inc. during the year.

## UTAH

### Copper, Uranium, Iron Ore Increasing; Lead-Zinc Suffers

The Utah Copper Division of the Kennecott Copper Corporation operated its Bingham Canyon open pit mine and Magna and Arthur flotation plants at postwar peak capacity during 1952. Total copper output was exceeded only during the two World War II years, 1942 and 1943. Utah Copper started a \$3,000,000 remodeling and new equipment installation at its flotation mills during the year. New flotation machines will increase recovery of copper, molybdenite, gold, and silver, while a new electrical distribution system will reduce operating costs. At the mine, a new low-level railroad transportation tunnel 7,042 feet in length was almost completed during the year. It will permit cheaper mining of ores in the low-ermost pit benches.

Uranium mining continued to expand in San Juan, Grand, Emery, and Juab Counties. In the Marysvale district, the Vanadium Company of America sunk a new deep vertical shaft to speed up mining from the parallel pitchblende-bearing Freedom and Prospector veins. VCA also announced plans to build a new and larger mill to replace its pilot plant treating uranium-copper ores at Hite, San Juan County. The United States Atomic Energy Commission sponsored a \$1,000,000 mine access road program to speed ore flow and to make trucking possible from hundreds of widely scattered uranium mines. The AEC also opened an ore buying station at Green River. Ores for the station came primarily from the Temple Mountain mines of the Consolidated Uranium Mines, Inc. Ore from Temple Mountain and Marysvale was railed to the Salt Lake City plant of Vitro Chemical Company. The company increased mill capacity to 300 tons per day. This is the largest noncarnotite and roscolite-type uranium mill in the United States.

In the Park City district the New Park Mining Company operated its Mayflower mine all year and was the district's most important producer as low metal prices forced the closing of Park Utah Consolidated Mines Company and the Silver King Coalition Mines Company. Mayflower installed a new underground hoist which permits lower cost mining of higher tonnages to depths several thousand feet below the Mayflower tunnel.

In the Bingham district the United States Smelting Refining and Mining Company operated its U. S. and Lark mines at capacity. These mines were the largest lead and zinc producers in the state. Despite the lower metal prices the production of lead and zinc was almost the same as in 1951.

In the nonmetallic field, the American Gilsonite Company continued gilsonite production from veins in the Bonanza district in eastern Utah. The Dragoon Consolidated Mining Company increased output of hallosite clay (used to make



Homestake Mining Company increased ore production by 163,681 tons in 1952 to 1,209,884. It continued to be the nation's most important gold producer and explored for uranium in both South Dakota and Wyoming.

an oil refining catalyst) in the Eureka district from its open-pit mine to a maximum capacity of 8,000 tons monthly.

Exploration loans with joint company—Defense Minerals Exploration Administration financing were underway at 37 contracts. Total value of the contracts was \$3,035,596.26. Eighteen loans were for lead-zinc, 15 for uranium, two for tungsten, and one each for copper and fluorspar-uranium.

Utah is now the fourth largest iron ore producing state. 1952 output was close to 4,000,000 tons, down from 1951 because of the steel strike. Columbia Iron Mining Company (United States Steel Corporation subsidiary) and Utah Construction Company operating open-pit mines near Cedar City were the leading producers.

## WASHINGTON

### Record zinc, lead output; ASARCO starts Van Stone

Record lead and zinc production despite lower prices for these metals highlighted Washington's metal mining in 1952.

Lead output increased 42 percent over 1951 to 11,376 tons. Previous record year was 1950, with 10,334 tons. The lead production was valued at \$3,640,320, a 31 percent increase over 1951.

Zinc output was up approximately 5 percent from 1951's previous high to 19,

149 tons. But because of the metal's lower average price in 1952, the greater production was worth 5 percent less than in 1951, or \$6,319,170.

Copper output increased 11 percent to 4,525 tons and was valued at \$2,199,150, also up 11 percent.

Gold production declined 21 percent to 53,528 fine ounces, worth \$1,873,480, compared to the 1951 value of \$2,359,175. Silver output was down 13 percent to 292,150 fine ounces, worth \$264,411.

Total value of the five metals was \$14,296,531, compared with \$14,030,884 in 1951, according to preliminary annual figures of the U.S. Bureau of Mines.

The sharp boost in lead production resulted from increased output by four northeastern Washington producers—Pend Oreille Mines and Metals Company, American Zinc, Lead and Smelting Company's Grandview mine lease, Anaconda Copper Mining Company's Bonanza operation and Goldfield Consolidated Mining Company's Deep Creek mine. Together they produced 99 percent of the state's lead.

The increase in zinc production resulted from increased output from the Pend Oreille mine in the Metaline district and the Deep Creek mine in the Northport district. The Pend Oreille mine was the state's leading zinc producer, followed by the Grandview mine, also in the Metaline district, the Deep Creek and the Holden mine of Howe Sound Company in central Washington's Chelan county. They accounted for 98 percent of the state's zinc output.

### Production of Gold, Silver, Copper, Lead and Zinc in Utah from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	356,501	11,395,485	266,838	69,601	42,049
1942	391,544	10,574,955	306,691	71,930	45,543
1943	390,470	9,479,340	323,989	65,257	46,896
1944	344,223	7,593,075	282,575	52,519	38,994
1945	279,979	6,106,545	226,376	40,817	33,630
1946	178,533	4,118,453	114,284	30,711	28,292
1947	421,662	7,780,032	266,533	49,698	43,673
1948	368,422	8,045,329	227,007	55,950	41,490
1949	314,058	6,724,880	197,245	53,072	40,670
1950	457,551	7,083,808	278,630	44,753	31,678
1951	432,216	7,310,665	271,086	50,451	34,317
1952 <sup>1</sup>	437,600	7,216,500	283,500	50,000	34,000

1. Estimated.

# Production of Gold, Silver, Copper, Lead and Zinc in Washington from 1941 Through 1952

Year	Gold Ounces	Silver Ounces	Copper Tons	Lead Tons	Zinc Tons
1941	84,176	402,030	8,686	3,903	14,320
1942	75,396	369,038	8,030	4,851	14,398
1943	65,244	370,440	7,365	5,022	12,203
1944	47,277	321,608	6,164	5,825	11,904
1945	57,860	281,444	5,281	3,802	11,693
1946	51,168	264,453	4,527	2,987	11,329
1947	34,965	293,736	2,240	5,359	13,800
1948	70,075	375,831	5,665	7,147	12,638
1949	71,994	357,853	5,275	4,417	10,740
1950	62,117	363,566	5,057	10,344	14,807
1951	67,405	344,948	4,089	8,002	18,189
1952 <sup>1</sup>	53,528	292,150	4,525	11,376	19,149

1. Estimated.

The gain in copper output was attributed to the Holden mine, which continued as the state's leading copper producer.

The sharp drop in silver production resulted mainly from decreased output at the Knob Hill mine in Ferry County, the Bonanza and the Gold King mine in Chelan County, the state's largest producers of the white metal. Another contributing factor was the closing, late in 1951, of the Kaaba Consolidated, Inc., Nighthawk mine in the Loomis-Oroville district, Okanogan County.

The lower gold output was due mainly to smaller production from Lovitt Mining Company's Gold King mine. The Holden, Knob Hill and Gold King were the state's leading gold producers. They accounted for 99 percent of total output.

Pend Oreille County ranked first among Washington counties in production of the five metals. It accounted for \$7,581,300 of total production, or 53 percent of the state's total. Chelan county was second with 26 percent and Stevens county third with 15 percent.

Development and exploration activity continued to be concentrated in Stevens, Pend Oreille and Okanogan counties.

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In Stevens county, American Smelting and Refining Company started turning out lead and zinc concentrates in its new Van Stone concentrator, which by year's end was operating at virtual capacity of 1,000 tons of ore daily. Mines Management, Inc., made initial lead-zinc-concentrate shipments from its 50-ton Advance mill. Springdale Silica Sand Company went into production at Lyon's hill. Pioneer Mining Company switched over from open-cut mining to underground production of silver-lead-zinc ore at its Longshot mine in the Old Dominion mining district. Grandview Mines, Inc., began diamond drilling mineral rights acquired in 1951. Tungsten Mining and Milling Company was granted a \$50,000 RFC production loan, first of its kind in the Pacific Northwest, to install a rod mill and flotation equipment at its gravity concentrator at the old Germania mine near Fruitland. Germania Consolidated Mines, Inc., made regular tungsten shipments and improved its mill flow-sheet.

Columbia Tungsten Corporation exposed scheelite and wolframite in surface trenching in the Summit mining district, opened a vein of tungsten ore in the same area. Pacific Northwest Mining Company reopened the old Lucille and Red Top mines. Chewelah Copper Company continued work of reopening the old United Copper property and started to reopen the adjoining old Copper King. Lessees made small shipments from the Gladstone Mining Company property.

In the Metaline district, Pend Oreille Mines and Metals Company put into operation a second 800-ton unit at its new concentrator, increased its underground ore conveyor system to a total length of 2,850 feet and installed considerable trackless mining equipment. American Zinc, Lead and Smelting Company increased mechanization at its Grandview lease operation, uncovered promising mineralization in its adjoining ground and diamond drilled its Bluebird property. It suspended production at the Lead Hill mine when zinc-lead prices broke. Sullivan Mining Company continued development at holdings of Metaline Mining and Leasing Company. Jim Creek Mines, Inc., received DMEA approval of a \$47,500 lead-zinc exploration program. Columbia Lead and Zinc Corporation carried out surface exploration. Pacnor Mines, Inc., started surface diamond drilling in the Russian Creek sector.

In the Orient district of Ferry County, Spokane Mining Syndicate, Inc., reopened the Talisman copper-zinc-silver mine.

In Chelan County, Gold Bond Mining Company continued development work and Howe Sound Company was granted

a DMPA over-ceiling contract with a 4.5-cent-a-pound premium for a year's production of nearly 9,000,000 pounds of copper at its Holden mine.

On the Olympic peninsula, the Crescent manganese mine was placed in production by Crescent Mining of Seattle after standing idle since Sunshine Mining Company stopped work there in 1946.

Twenty-five DMEA projects were underway in Washington at year's end. One DMEA exploration, at Mines Management's Iroquois mine in Stevens county, had been certified a zinc-lead discovery.

## WYOMING

### Large-Scale Trona Operation Makes Tremendous Progress

Most significant development within the state during 1953 was the progress made in construction of the new \$16,000,000 trona plant and mine by the Intermountain Chemical Corporation, 20 miles west of Green River. When in production in 1953, it will contribute materially to the nation's supply of soda ash.

Phosphate mining continued in the western part of the state where the San Francisco Chemical Company is conducting large-scale operations at Leflore.

### Production of Bentonite, Feldspar and Iron Ore in Wyoming from 1941 Through 1952

Year	Bentonite Tons	Feldspar* Tons	Iron Ore Gross tons
1941	145,574	11,846	985,852
1942	139,410	13,953	957,027
1943	159,252	.....	814,201
1944	196,138	22,415	713,750
1945	199,293	17,021	606,005
1946	212,530	20,345	619,317
1947	259,084	18,801	651,471
1948	383,815	16,760	689,591
1949	350,644	.....	539,554
1950	375,000	.....	491,900
1951	.....	.....	616,049
1952 <sup>1</sup>	.....	.....	500,000

\* Long Tons. Crude sold or used.  
1. Estimated.

The United States Department of the Interior withdrew 65,000 acres of public land from mining claim location at the request of the U.S. Atomic Energy Commission when uranium indications were found there. The land is in the Pumpkin Flats district of Campbell and Johnson Counties.

A Defense Materials Exploration Administration contract was granted for sulphur exploratory work in Hot Spring County.

A new process was reported for the successful treatment of the state's huge Iron Mountain deposit, the nation's second largest reserve of titaniferous magnetite.

After fifty years, the Copper King mine near Cheyenne was reopened, and a core drilling program was undertaken to determine the tonnage available.

Construction and rehabilitation of the experimental alumina plant at Laramie was nearly completed and several five-day runs made in a small pilot unit. The program is a major phase of the U. S. Bureau of Mines' attempt to develop industrial processes for producing aluminum from domestic raw materials. The plant had been idle since 1946 when the Defense Plant Corporation discontinued construction.



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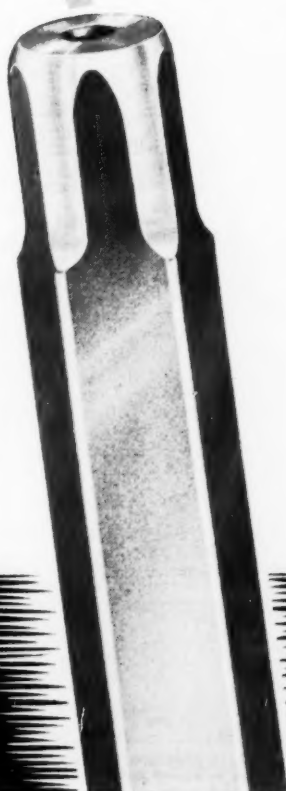
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# World-Wide Mining Report



## LATIN AMERICA

### BOLIVIA

Area—416,040 square miles

Currency Unit—Boliviano

Value—\$0.0165 (official)

Chief Mineral Products—Tin, tungsten, lead, silver, zinc.

The revolution in April 1952 was the most significant event of the year. Nationalization of the mines owned by Patiño Mines and Enterprises Consolidated, Inc., Mauricio Hochschild (SAMI), and Cia. Aramayo de Mines en Bolivia, followed on October 31. The Corporación Minera de Bolivia was founded to manage the 23 nationalized mines, among which were the larger well known units as Catavi, Huanuni, Colquiri, San Jose, Cerro de Potosi, Huanchaca, Animas, Araca, and Caracoles.

During the year, Cia. American Smelting Boliviana Ltd. closed its Corocoro copper mine and gave up the property. The Banco Minero took over operations for a time, and then transferred them to the Corporación Minera.

Since nationalization, production has shown little variation. The group of medium-sized mines, with a special legal status, are having a particularly difficult time. Though wages were increased, the percentage of foreign currency at the disposal of the company and the rate of exchange paid for the money sold to the Banco Central were reduced.

Under these unfavorable conditions, no new major mine development was undertaken. However, one of the main events was the signing of a contract by the Banco Minero and Glenn McCarthy of Houston, Texas, for the development of sulphur deposits in the Department of Potosi in southwestern Bolivia near the Chilean border. The concession is in one of the world's highest mining districts—5,790 meters or almost 20,000 feet altitude.

**Metal Exports from Bolivia in 1951 and 1952<sup>1</sup>**

Metal	1951	1952
Tin <sup>2</sup>	37,180	30,050
Lead <sup>3</sup>	33,600	31,150
Zinc <sup>3</sup>	33,575	32,950
Antimony <sup>3</sup>	13,025	10,390
Copper <sup>2</sup>	5,320	4,860
Tungsten <sup>3</sup>	1,795	2,465
Silver <sup>4</sup>	7,169,500	6,371,000
Gold <sup>4</sup>	1,190	1,130

1. Preliminary. 2. In short tons. 3. Metal equivalent in short tons. 4. In fine ounces.

In an attempt to become independent of outside tin smelters, the Bolivian government sought bids for the construction of a tin smelter within the country but no contracts were issued.

### BRAZIL

Area—3,286,170 square miles

Currency Unit—Cruzeiro

Value—\$0.53

Chief Mineral Products—Iron, manganese, bauxite, tantalite, beryl, quartz, mica, scheelite, ilmenite.

Mining operations in Brazil during the year of 1952 were reasonably increased when compared to the year of 1951. In 1952, for the first time, iron ore was among the first 10 Brazilian exports. In the same year at least 28 new mining companies received Government permits to operate in the country. The following were the principal events regarding mining:

The "Cia. Química Industrial 'CIL' S.A.," located at Engenheiro Trindade, E.F.C.B., started its first chemical plant to produce titanium oxide. The plant is considered to be one of the most modern in the world. At the same place and for the same purpose the "CIL" company has installed a plant which is producing 60 metric tons of sulphuric acid daily. It is believed that in 1953 the same company will be producing other titanium compounds and barium salts.

Preliminary studies regarding the use of pyrite as a source of sulphur were concluded by Brazilian geologists and chemists. The commission of experts arrived at the conclusion that it would be desirable to use the coal residues from the mines of Santa Catarina State as a source of sulphur. The well-known Volta Redonda steel plant, State of Rio de Janeiro, has built its second blast furnace. With this new unit the annual production of steel will be doubled, i.e. to 700,000 metric tons. According to Dr. Robert F. Mehl's report to the "Comissão de Desenvolvimento Industrial" (Industrial Development Commission) Brazil will be producing 1,200,000 metric tons of steel in 1955, and 1,700,000 in 1960.

The Brazilian government through the National Research Council worked out in detail particular plans to intensify the search for radioactive minerals. At least two areas have been objects of intensive studies. One of the two is the Poços de Caldas region, Minas Gerais State, where local rocks contain disseminated zirconium minerals (zircon and baddeleyite) which seem to contain substantial amounts of uranium and radium. The second area is located in São João del Rey, also in the State of Minas Gerais, where there occur deposits of "djal-

maite," a highly complex mineral containing uranium, columbium, tantalum, and tin. The Departamento Nacional da Produção Mineral (National Department of Mineral Production) is building a concentrating plant in this area to obtain relatively pure concentrates of that mineral.

The "departamento Nacional da Produção Mineral" (National Department Mineral Production) completed in 1952 important studies regarding the possibility of using the leucitic rocks of the Poços de Caldas region, Minas Gerais, as a source of potash. Several new occurrences have been discovered. The most important of all by its volume and richness in K<sub>2</sub>O (12.0 percent) is the area located in the place named "retiro de D. Tita."

### BRITISH GUIANA

Area—83,000 square miles

Currency Unit—British West Indian Dollar

Value—\$0.58

Chief Mineral Products—Bauxite, diamonds, gold

The decline in production of precious minerals has been offset by the steady growth in the output of bauxite, which is now the chief mineral product of British Guiana. The Demerara Bauxite Company Limited, a subsidiary of the Canadian ALCAN group, is the largest bauxite producer. 1952 exports totalled 2,113,678 tons (1,840,654 tons during 1951). The Berbice Company Limited is the only other operating bauxite company and its production was 172,267 tons in 1952 (162,690 tons during 1951).

The most important development of recent date is the proposed erection of a plant by Harvey Machine Company Limited, capable of treating 240,000 tons of bauxite per annum. As yet, the ownership of the bauxite properties concerned has not been established and litigation is pending. Reynolds Metal Company is in occupation following a deal entered into between it and the Berbice Company Limited, the original owners, but the Harvey firm is contesting the title.

British Guiana's total diamond production, which was 38,305 carats during 1952 (43,260 carats during 1951), is being mined by local diggers in primitive one-man operations. "Pork-knockers," the local term for these diggers, together with six small-scale operators, also account for some of the gold produced in the country, and their output was 4,235 ounces during 1952 (2,834 ounces during 1951).

The only operating dredging company is the United Kingdom-registered British Guiana Consolidated Goldfields Limited, who have holdings spread over a wide area. 19,988 ounces of gold were produced during 1952 which compares

with an output of 11,846 ounces during 1951 and 7,444 ounces during 1950. Apart from the increase in production, the significant feature of operations during 1952 was the bringing into reserve of an additional 6,000,000 cubic yards of gravel following a systematic program of Banca drilling on the lower and middle Konawaruk River. Total gravel reserves are now estimated at 56,000,000 cubic yards with an estimated recovery of about 400,000 ounces of gold. Plans for further expansion reached fruition during 1952 when a third dredge was acquired which will be erected on the Konawaruk River where an airstrip was under construction.

In 1952, bauxite was the only base mineral mined in British Guiana but steps were taken to prove large low-grade deposits of manganese. The African Manganese Company Limited, working under a special agreement with the Barima Gold Mining Company (Canada) Limited, continued prospecting operations on a belt of manganiferous laterite, which stretches between the Barima and Barama Rivers in the northern part of British Guiana near the Venezuelan border. In addition, several prospecting syndicates are engaged in exploration for columbite-tantalite deposits on the Rumong-Rumong and Morabisi Rivers, on the left bank of the Mazaruni River.

## COLOMBIA

Area—448,794 square miles

Currency Unit—Peso

Value—\$0.40

Chief Mineral Products—Gold, platinum.

By resorting to mining of higher grade sections of ore deposits, gold producers managed to maintain total gold production at practically the same level as for the year 1951. The included table is a comparison of gold production during the years 1951 and 1952.

Pato Consolidated Gold Mines Ltd., with dredging operations at Zaragoza, Antioquia, accounted for approximately 38 per cent of the total gold production for 1952.

The associated companies, Compañía Minera Choco Pacifico, Compañía Minera de Nariño, and the Tamaná Mining Corporation, with dredging operations along the west coastal district, produced approximately 16 percent of the total gold.

Frontino Gold Mines Ltd., which has been operating its lode properties in the municipality of Segovia, Antioquia since the year 1864, accounted for approximately 14.5 percent of the gold production, and embarked on an extensive exploration program to replenish its rapidly depleting ore reserves.

Compañía Minera del Limon, located near Zaragoza, Antioquia, suspended its exploration work, while means are sought to finance the installation of a 25-ton modern mill and plant, or to continue further exploration work to develop a larger tonnage to justify a larger mill. Exploration work completed to date has opened up a 16 inch wide vein averaging 1.37 ounces gold per metric ton over a continuous horizontal distance of 1,000 feet, and a dip distance of 275 feet. At the time exploration work was suspended, a total of 14,000 metric tons of ore containing 19,000 ounces of gold had been blocked out.

At the end of the year the premium paid by the Colombian Association of

Miners for newly mined gold was increased to 30.00 pesos per ounce, thus raising the price of newly mined gold received by producers to an equivalent of \$47.00 United States dollars per ounce.

Reliable estimates set the production of platinum for the year at a total of 30,000 ounces. It is estimated that practically all the platinum produced by hand panning methods is smuggled out of the country and sold on the black market.

Industrias Puracé S. A., located near Popayan, Cauca, completed the installation of a modern mill with a capacity of 100 daily tons of sulphur ore, thus increasing sulphur producing capacity of its plant by 30 tons of sulphur per day. The old, manually operated plant, still in service, had a capacity of 35 tons per day to produce 10 tons of sulphur daily.

Canadian Johns-Manville Corporation, after preliminary exploration, teamed up with Colombian capital to explore asbestos deposits in the Municipality of Campamento in the department of Antioquia. At the end of the year, several diamond drill rigs had been moved to the property, and exploration work was under way. The existence of these deposits had been known for a number of years, but these had been considered unattractive prior to the increase in the price of asbestos of the last two or three years. Because of the high cost of inland transportation, Colombian mining circles are following the progress of this work with great interest, as a venture of this nature will be considered to be a test case of whether or not large scale mining of a product, other than precious metals, can be profitably carried out in Colombia by a financially strong foreign company.

At the end of the year the manager of Paz del Rio, the government sponsored iron and steel project now under preparation in the Department Boyaca, announced that it was expected that the project would have its first production by the end of the year 1953.

In an effort to stimulate the mining of minerals other than those of the precious metals, the Colombian government passed new legislation to facilitate the staking of mining claims. The former, tediously and dearly obtained, required mining concessions but was replaced by

## Comparisons of Gold and Silver Production in Colombia in 1951 and 1952

Item	1951	1952
Total production pure gold in ounces	430,000	422,000
Total production pure silver in ounces	129,100	123,050
Ounces gold produced from alluvial deposits	329,500	332,000
Ounces gold produced from lode deposits	100,500	90,000
Percent produced by foreign companies	76	77
Percent produced by Colombian companies	24	23

simple mining permits to be obtained from the Ministry of Mines. Other incentives are offered the mining industry by tax exemptions, and the permitting of the exportation of mineral products under very favorable currency exchange regulations.

## COSTA RICA

Area—19,258 square miles

Currency Unit—Colon

Value—\$0.1764 (official)

Chief Mineral Products—Gold, silver, manganese, lead.

Miramar Mining & Exploration Company, Bonanza, Costa Rica reports a continuous but small production from both the Bonanza mine and the La Union mine, which is operated under lease. A dewatering of the old San Lucas section of Bonanza, flooded for the last 10 years, is being planned for 1953. It is hoped a considerable amount of ore will be recovered.

Nacional Minera, S. A. Placer operation on the West Coast of the Peninsula de Osa. The new 2½-yard floating dragline was placed in operation about the middle of the year, but due to lack of experienced operators, operation was intermittent till the end of the year. 24-hour operation started at the end of the year, and expected to continue throughout 1953.

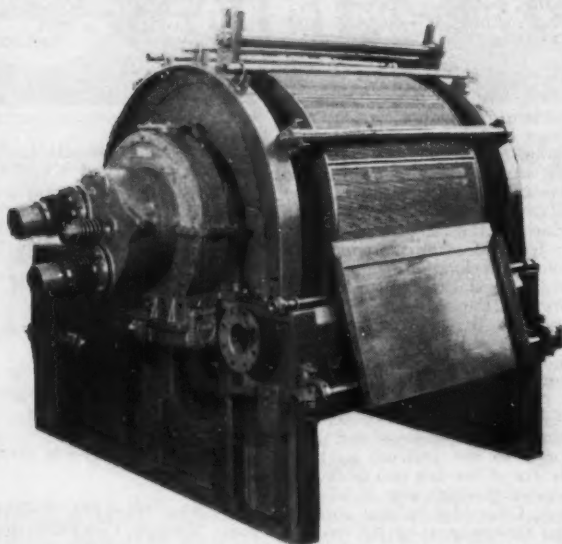
Metals & Chemicals, Guacimal lead mine. A 100-ton mill was installed and commenced operation near the end of

Banca drilling for gold by the British Guiana Consolidated Goldfields Limited in the Konawaruk River area of British Guiana.





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the year. Exploration and development proved disappointing, and the mill was shut down in January, 1953, for lack of ore.

Increased interest in manganese, by several companies, on the West Coast, continues. Also investigation by several companies of placer prospects on West Coast.

## CUBA

Area—44,000 square miles

Currency Unit—Peso

Value—\$1.00

Chief Mineral Products—Nickel, manganese, copper, chromite, iron.

The most important development in 1952 was the reopening of the Nicaraguan nickel-oxide plant in the province of Oriente. The plant resumed operation in January 1952 and by July it was reported to be operating at full capacity. The great reserves of nickeliferous ore at Moa and Sierra del Cristal, near Nicaragua, are being systematically explored.

Manganese production came mainly from the Charco Redondo mine near Bayame, in the province of Oriente. Production at Charco Redondo was around 500 tons of shipping ore per day. Some small manganese mines were operated in the province but their production was relatively small. There has been considerable interest in the area surrounding the Charco Redondo property, and some exploratory work with churn drills is already under way in that area.

The Matahambre mine in the province of Pinar del Rio continued to be the main producer of copper concentrates. Great interest was shown in the old copper mines in the area west of the Matahambre property, where geological structures and mineralization are very similar to those found at the Matahambre mine. Several of these old mines are being explored and prepared for production.

The search for iron ore was very active during the year. The Francisco Malle mine near Cienfuegos, province of Las Villas, and the magnetite deposit of John Fritz, Province of Camagüey, were developed and put into operation. There is a possibility that the gossan ores of the district of Los Arroyos, province of Pinar del Rio, will also be developed.

Experiments for the production of nickeliferous sponge iron from Cuban lateritic ores, using the Swann process, are under way at Birmingham, Alabama. Financial aid is supplied by the Cuban government. The preliminary tests are reported to be satisfactory.

Production of chromite ore came mainly from the deposits at Mayari and Moa.

## EL SALVADOR

Area—13,176 square miles

Currency Unit—Colon

Value—\$0.40

Chief Mineral Products—Gold, silver.

The El Dorado mine of the New York and El Salvador Mining Company gold mine and mill continued operations during the year.

Minas Montecristo maintained operations at about the same scale as in 1951 at its gold-silver mine.

Compania Minera de Oriente, S. A. closed its Potosi mine in northeastern El Salvador during the year.

## FRENCH GUIANA

Area—5,135 square miles  
Currency Unit—Franc  
Value—\$0.0029  
Chief Mineral Product—Gold.

French Guiana exported 8,825 ounces of gold (compared to 10,950 in 1951). Well organized surveys are being undertaken in the Saint Elie and Adieu-Vat region, where several lode areas have been discovered, as well as on the Delices (Moyenne Mana) reserve of the Syndicat de Recherche PI (made up of the Societe d'Exploitations Minières de l'Inini and the Bureau Minier Guyanais).

Prospecting for bauxite has brought about the discovery of one deposit at an altitude varying between 150 and 300 meters to the east of Cayenne island in the mountainous region of Rourou-Fourgassie-Kaw.

The presence of columbite-tantalite has been proved in the Consortium Minier Guyanais area situated in the Sinnamary Basin.

## GUATEMALA

Area—42,044 square miles  
Currency Unit—Quetzal  
Value—\$1.00  
Chief Mineral Products—Lead, silver, zinc.

The Cia. Minera de Huehuetenango started its flotation mill and lead smelter during 1952 following a successful mine development program in 1951. The Cia Minera de Guatemala mined and shipped lead-silver ores during the year. The Minerales Nacionales, S. A. suspended operations during the year.

## HONDURAS

Area—59,160 square miles  
Currency Unit—Lempira  
Value—\$0.50  
Chief Mineral Products—Gold, silver.

The New York and Honduras Rosario Mining Company maintained normal production at its silver-gold San Juancito mine which has been operated continuously for more than 200 years. Exploration is reported to have not found ore equivalent to that mined during 1952.

The El Mochito mine, near Lake Johoa, operated by the Rosario company continued production at a high level. Development of deeper levels proved very favorable and ore reserves were increased. The Draft Gold Mines, Yucaran, constructed and operated a new 50 ton per day mill.

The New Idria Honduras Mining Company with a gold mine in the Department of Copan continued regular operations on the same scale as in 1951.

## JAMAICA

Area—4,411 square miles  
Currency Unit—Pound Sterling  
Value—\$2.80  
Chief Mineral Products—Bauxite, gypsum.

In Jamaica, 1952 was the year that will long be remembered as the period

during which the mining of the bauxite deposits commenced. The additional revenue received from these operations will materially assist in bolstering the local economy for years to come.

Reynolds Jamaica Mines, Ltd. with installations in St. Ann, Parish, shipped the first load of bauxite from its Ocho Rios pier on June 5th. Through December 31st, a total of 240,000 tons was sent to the Reynolds Metals Company, Hurricane Creek reduction plant in Arkansas. Production for 1953 will reach 750,000 tons.

The other two bauxite companies, Alumina Jamaica Ltd. (a subsidiary of Aluminum Company of Canada) with installations at Shooter's Hill, Manchester, Parish; and Kaiser Bauxite Company with a plant at Duff House, St. Elizabeth, Parish did not export any bauxite during the year but were engaged in the final stages of construction of their plants and stockpiling ore for future use. Alumina Jamaica Ltd. which will refine the ore to alumina locally, plan to ship to Norway during 1953. The plant has a daily capacity of 100 metric tons of alumina.

Kaiser anticipates shipment of dried bauxite to its Baton Rouge, Louisiana plant in 1953 and plan to mine 1,000,000 tons yearly.

Production of gypsum, the only other mineral mined on a commercial scale increased over the 1951 figure of 24,711 tons exported to 36,334 tons.

Minor discoveries of iron, lead, zinc, copper and manganese were reported during 1952 but have not attracted much interest due to the insufficient tonnages. The Government Geological Survey is actively engaged in a detailed geological survey of the Island which will require 10 years to complete with a view towards obtaining additional information on the above mentioned deposits.

## MEXICO

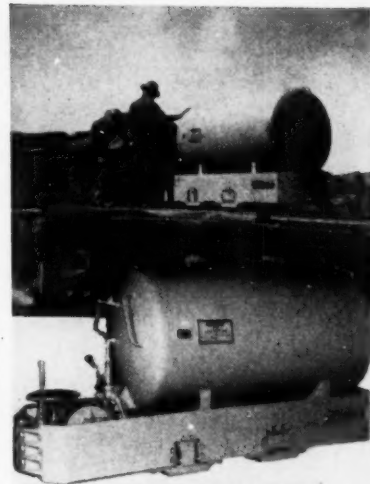
Area—763,944 square miles  
Currency Unit—Peso  
Value—\$0.1156  
Chief Mineral Products—Silver, lead, zinc, antimony, copper, graphite, iron.

The rising world price of silver somewhat encouraged the mining industry which had been struggling against depression in 1952 caused by the sharp slumps in the price of lead and zinc. The production of silver totaled 45,500,000 fine ounces, an increase of 1,200,000 over output in 1951.

General complaints in the industry centered on high taxes and increased rail freight rates. Appeals were made to the new government to alleviate this situation and there is hope that the new administration will modify the import tax. There is not much hope for a lower freight rate, however, since the government-owned National Railways are undergoing an expensive rehabilitation and the employees have been granted a substantial wage increase.

The low price for lead hit all small-scale and some medium-scale mines hard. Several mines, particularly in Zacatecas, were forced to curtail operations by one shift per day. There were no closures of important mines, however, as some industry members had predicted.

When the silver price improved, it became apparent that more low-grade deposits would be worked. In line with this, the government announced that it would push to an early completion the



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**Mine Production of Metals in Metric Tons in Mexico in 1950, 1951, and 1952**

Metal	1950	1951	1952
Gold	12,693	12,237	14,289,224
Silver	1,528,470	1,362,262	1,566,171
Copper	61,701	67,351	58,463
Lead	238,078	225,468	246,027
Zinc	220,654	180,064	227,375
Iron	285,738	312,581	336,838
Manganese	14,461	28,524	45,002
Antimony	5,857	6,825	5,531
Mercury	128	279	301
Graphite	22,627	33,286	24,153
Tungsten	40	195	297
Arsenic	8,987	12,762	2,865

building of the large, modern ore dock at Tampico to facilitate sea shipments of mining products.

Prospecting continued, mostly under the direction of the National Institute for the Investigation of Mineral Resources. It reported good results in the location of gold, silver, lead, and zinc deposits in Oaxaca, but there was no outstanding metal discovery during the year. The improved silver situation indicated that private interests would do more prospecting, while the Institute requested more money for its prospecting program.

There was an indication that the small miner would become more active, and would receive more technical aid and financial help from the government. The Oaxaca government invitation to investors, based upon what is called highly promising mining prospects, was circulated by the Ministry of National Economy to chambers of commerce and industry throughout Mexico.

Rail service improved, and there were no complaints of ore bottlenecks at the mines. Movements of ore to refineries and for export were reported to be smoother. The mining industry continued to urge the building of more roads to facilitate ore movement, and to permit the working of important deposits that presently are inaccessible because of the lack of transportation. The federal government announced that it would invest 247,400,000 pesos (\$28,000,000) in 1953 in building a trunk line and local roads to serve mining and farming regions in an attempt to increase production in those fields. It was indicated that this outlay would be separate and apart from funds already pledged for road building.

Sulphur came into prominence during the year with operations by the Gulf Sulphur group and some Mexican enterprises in the Minitlan zone of Vera Cruz and on the Isthmus of Tehuantepec.

## NICARAGUA

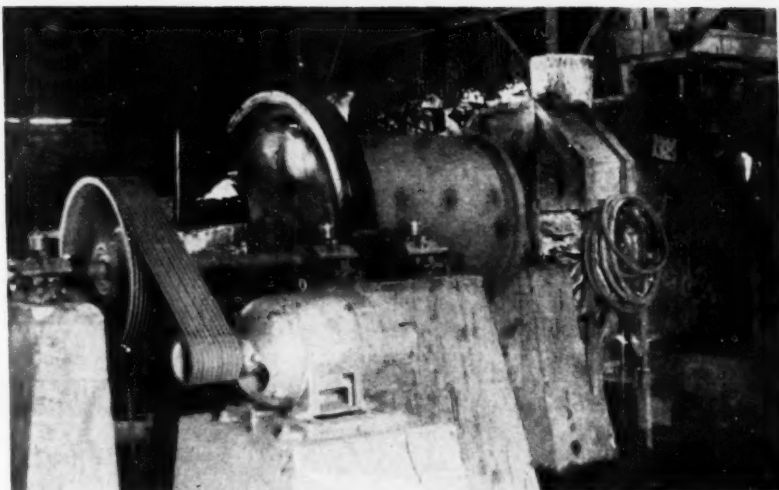
Area—57,144 square miles

Currency Unit—Cordoba

Value—\$0.1418 (official)

Chief Mineral Products—Gold, silver

The mining industry in Nicaragua is the largest in Central America. Several records were established by the larger operators. The biggest operation in Central America is that of La Luz Mines, Ltd. at Siuna where the daily mill tonnage was increased to 2,000 per day during the year. The mining rate underground was increased as the new underground crushing plant and larger hoist came into operation. Deepening of the main shaft was underway and it is ex-



Denver ball mill in the Le Sanchez mill, Zimapan, Hidalgo, Mexico.

pected that it will be finished to the 1,250 level during 1953.

At the Cia Minera del Jabali mine at Santo Domingo extensive exploration during the year failed to develop appreciable ore reserves so it appears probable that the mine will shut down completely in 1953 after more than 100 years of continuous operation. Ore value was up to \$20.83 per ton from \$15.56 in 1951 but tonnage milled was down from 56,100 to 37,477 in 1952. Gold recovery was also down from 23,079 to 20,267 ounces, but silver was up to 49,921 from 1951's 34,286 ounces.

Neptune Gold Mining Company (ASARCO), Bonanza, Nicaragua. Total mill production for 1952, 257,700 tons, compared to 260,000 in 1951. A few more ounces of gold were produced in 1952 than in 1951, but the decrease in gold prices from an average of \$40.00 in 1951 to \$37.60 in 1952 left the net value of production the same. Operations for 1953 are anticipated at the same rate.

A new yearly record for gold production despite a decrease in tonnage was set by the Cia. Minera La India. Higher grade ore, at depth, in the La India vein, and the discovery of several high grade ore bodies made this higher production possible. Operations may be expanded during 1953 if labor shortage eases. At La India's subsidiary, Empresa Minera de Nicaragua, a large scale development program was in progress. Production was slightly higher than in 1951.

## PERU

Area—482,258 square miles

Currency Unit—Sol

Value—\$0.0650

Chief Mineral Products—Zinc, lead, silver, copper, bismuth, vanadium.

The year 1952 in Peru showed the exaggerated effects produced by changes in supply and demand on a comparatively small area of free economy when important producers and the greater part of the world's consumers were subject to various kinds of control.

The year began in a boom, with a stable political atmosphere, strong de-

mand and high prices obtainable; leading to expansion of established properties and the opening up of new ones, including many small "marginal" producers. Later, production began to catch up; controls were loosened, markets freed, and demand eased off. So the year ended in slump or bust for small mines and difficult times for the medium ones, while the larger companies were tided over by retrenchment, selective mining, or living on reserves. Only strongly financed developments based on long-term calculations were kept going. There were complaints from the small miners but generally confidence in the future prevailed, supported by the large-scale programs of three foreign companies (American Smelting & Refining Company, Cerro de Pasco Corporation, and Marcona Mining Co., the Utah Construction—Cyprus Mines subsidiary), by continued interest and exploration activity by other foreign companies, and by the favorable atmosphere due to the intense and growing activity in oil.

Peru's status as a raw material producer, only at the beginning of industrialization, has almost as much effect on the relative production of different materials as has their natural abundance. Coal, iron, and non-metals have been relatively unimportant, but are generally abundant and due for expansion; base metals and silver have been the mainstay of production and will remain so for a long time. Gold, as elsewhere, is struggling between rising costs and a controlled price.

There was considerable interest in the volcanic sulphur deposits in the departments of Arequipa, Moquegua, and Tacna of Southern Peru, with an unknown but small production. Foreign interests, whose identity is difficult to ascertain, were active in examination and some preparation for production was under way.

Throughout the country, exploration continued on a big and expanding scale. The established companies, Cerro de Pasco Corporation and the American Smelter and Refining Company, showed great activity, and M. Hochschild y Cia. greatly increased its activity since losing its Bolivian interests. New foreign companies established in Peru included two Canadian ones, Consolidated Guayana Mines Ltd. (Ventures subsidiary) and Peruvian Oil and Minerals Ltd. Among

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2A-30	9	460
2A-34	10	490
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AB-42	16	740
2B-36	20	1230
2B-42	24	1340
2B-48	27	1430
2C-60	51	2270

# PACIFIC PRODUCTS

## PACIFIC ROUND-THE-CORNER SHEAVE BLOCKS

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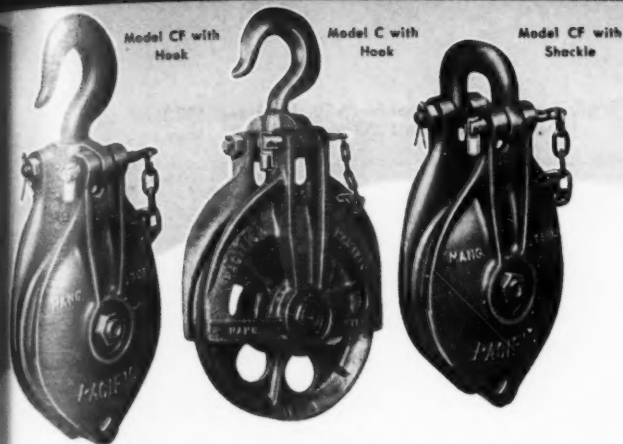
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foreign interests looking for properties in Peru were Kennecott Copper Corporation, La India (Nicaraguan subsidiary of Noranda Mines Ltd.), and others. DMIPA Regional Office No. 2 was set up in Lima to encourage strategic mineral production in South America, with an important section devoted to Peru.

Cerro de Pasco started intensive exploration by drilling of its Cuajone porphyry copper deposit near Toquepala, Southern Peru, and has many other properties under investigation, with a subsidiary exploration office functioning in Arequipa. Consolidated Guayana has the Santander zinc-lead property under option and is planning a mine and hydroelectric power plant, a camp, and a 500-ton concentrator. It is also investigating a practically new discovery, the Aguas Verdes contact copper deposit. Chavin Mines in which Guayana has an interest, is being developed; a

# Metal Production in Peru in 1950, 1951 and 1952: and Changes in 1952 Versus 1951

Metal	1950	1951	1952	% Change in 1952 over 1951
Zinc	82,385	111,630	157,700	46.07%
Lead	69,060	90,730	116,470	28.72%
Copper	30,035	35,560	36,160	1.68%
Vanadium	1,281	1,290	1,380	6.98%
Antimony	1,111	1,130	1,085	-4.07%
Bismuth	252	535	585	9.33%
Tungsten	440	310	185	-59.35%
Molybdenum	7	6	6	0%
Silver	12,687,000	17,380,000	20,040,000	15.28%
Gold	119,440	147,960	136,165	-7.97%

1. 1952 Production Estimated. 2. All metals are given in short tons, except gold and silver which are given in fine ounces.

road to the property was completed in September.

Cerro de Pasco's mining operations continued normally, but are steadily

growing; the San Cristobal mine is being prepared for production and the Jatunhuasi coal field is being opened up, with a view to meet increasing coke and other coal needs. Milling capacity is being increased; the Paragsha mill now has a 1000-ton-per-day capacity. The new 35-ton electrolytic zinc refinery was completed and work has started on two 35-ton-per-day sterling (electrothermic) zinc units. Work on the Paucartambo hydroelectric power plant and on enlarging the Malpaso plant proceeded.

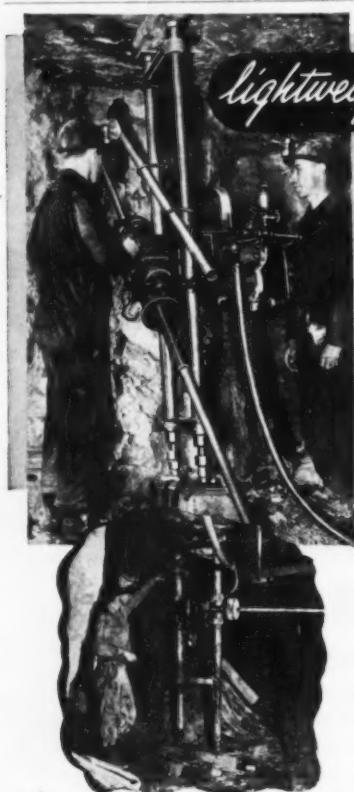
ASARCO formed a new subsidiary, Southern Peru Company, to bring into production its Toquepala property (also Quelleveco) in Southern Peru. 400,000,000 tons of 1.0 percent Cu were proved and \$160,000,000 will be needed to equip mine mill and smelter and to build a railway and modern port at Ilo. Application for a loan has been made to the Export-Import Bank. Initial production of 100,000 tons of copper per year is planned. ASARCO's existing subsidiary, Northern Peru Mining and Smelting Co., continued normal operation and brought into production its 7,000-ton-per-month Chilete lead-zinc mine.

Peruvian iron ore came into the lime-light when, after a short option and some months of intensive drilling by Utah Construction Company at the Marcona deposits (department of Ica), a joint operating company was formed by Utah and Cyprus Mines Corporation. The operating company has a 20-year lease on the deposits from the owners, Peruvian Government-controlled Santa Corporation, while the latter has an option on up to 300,000 per year at below market price for the iron and steel plant it is planning at Chimbote. The operating company has to construct a port (the deposits are within easy trucking distance of the coast) and its investment has been put at about \$10,000,000. It plans to export from 5,000 to 10,000 tons monthly later in 1953 and ultimate exports, which will pay a royalty to the owners, will be limited in proportion to the reserves proved. These are said to be 100,000,000 tons of 60 percent Fe but much of this is believed to carry about 3 percent S. Some 20,000,000 tons is of higher grade and low in sulphur.

Cie. des Mines de Huaron enlarged its concentrator from 750 to 1500 tons per day. Cia. Minera Atacocha S. A. finished its 600-ton-per-day concentrator and 5,000-hp. hydroelectric power plant.

In the Rosenshine group of mines, Volcan completed its 350-ton-per-day concentrator which can handle ore from the Volcan lead-zinc copper mine or from the Carahuacra zinc mine. Capitana and San Luis Gold Mines were in production with a gold refinery at Capitana and the Eugenia gold property was being developed.

Consorcio Minero del Peru produced



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gold from its Calpa mine, where sulphide ore is replacing oxide and flotation is being introduced. At San Juan de Lucanas, a 200-ton-per-day concentrator is working well on a complex silver-gold-bismuth sulphide ore, previously treated by cyanidation.

Compania de Minas del Peru S. A. (M. Hochschild) operated its Suiquitambo gold mine and started operation of the San Antonio de Esquilache lead-zinc-silver mine with a 300-ton concentrator.

Banco Minero, at its various custom mills treated 96,000 tons of ore to produce 7,400 tons of lead concentrate, 5,300 tons of zinc concentrate, and 150 tons of copper concentrate. 5,000 tons of ore in small lots were bought in the central region and 980 tons in the new purchasing office at Arequipa. The Sacracancha mill near Morococha was enlarged from 70 to 200 tons per day and 60 ton plants are in construction at Hualgayoc in the North (Cajamarca) and Huarochiri (Centre).

Sociedad Minera Puquiococha S. A. (Morococha district) enlarged its mill from 125 to 250 tons per day. Sociedad Minera Yauli, S. A. (Morococha district) enlarged its mill from 150 to 240 tons per day. Sindicato Explotador Sayapullo S. A. installed an 800-h.p. hydroelectric plant. Fermin Malaga Santolalla e Hijos, S. A. (owner of Peru's principal tungsten mine) is building a road to its property which lacks about 30 miles for completion. Empresa Minera Huamachuco S. A. enlarged its 100-ton plant to 150 tons, treating lead-antimony ore.

## SURINAM

Area—55,144 square miles

Currency Unit—Surinam Guilder

Value—\$0.531

Chief Mineral Products—Bauxite, gold.

Exports of bauxite reached an all time record of 3,155,000 metric tons valued at \$19,500,000 against 2,674,500 metric tons valued at \$17,000,000 in 1951. Tonnage for 1953 may be somewhat less owing to declining production of Param. Value of exports however is expected to be about the same because of production of more calcined-grade ore. Most of the ore was shipped to the United States as usual. Since 1947 Surinam ranks first in bauxite mining, accounting for about 25 percent of world production. Both bauxite mining companies, i.e. Surinam Bauxite Company, Ltd. (a 100 percent subsidiary of Alcoa) and Billiton Company, Ltd. showed great activity in enlarging and reorganizing their plants at Moengo, Param and Onverdacht-Smalkalden respectively.

At Moengo construction continued for bigger drying and calcining capacity and for additional loading facilities. In 1953 Moengo will have 5 drying and 4 dual-purpose kilns and 2 loading docks. At the end of 1952 Moengo loaded three 4,000 to 6,000 ton ocean going ore carriers every 2 days. Bauxite production for 1953 may be about the same as in 1952. There was some declining activity at Param on the West bank of the Surinam River owing to depletion of the old workings. Most of the production came from Onoribo and Accaribo. There was great development activity, however, at Rorac on the East bank of the river. Bauxite from Rorac will be crushed and washed on the East bank and then barged to the 3 kiln-plant of

## Details of Bauxite Exports and Gold Shipments From Surinam in 1951 and 1952

Company	Mine	Grade	1951	1952
Metric Tons				
Surinam Bauxite Company, Ltd.	Moengo	BAUXITE		
		Metal	1,214,500	1,645,000
		Chemical	54,500	42,500
Billiton Company, Ltd.	Paramaribo	Metal	853,000	850,500
		Abrasive	63,000	49,500
Dept. of Public Works and Traffic		Metal	449,500	
		Chemical and abrasive	40,000	587,500
TOTAL EXPORTS			2,674,500	3,155,000
GOLD <sup>a</sup>				
			Ounces	
Sara Creek Goldfields, Ltd.			3,915	3,335
White Water Mines, Ltd.			600	430
Others			1,985	2,370
TOTAL GOLD SHIPMENTS			6,500	6,135

1. Total three grades. 2. Shipments.

Param, Production of Rorac will start in the middle of 1953.

The new Geological Department of the Surinam Bauxite Company, Ltd. located a bauxite deposit under several feet of overburden at Onoribo near Param. Param mining is expected to be prolonged for many years by this discovery.

Billiton Company, Ltd. continued its reorganizing of the Onverdacht mine. Transport to the washing plant is now done wholly by Tournarockers, while capacity of the 7½ kilometer long railroad from Onverdacht to the kilns and loading dock at Smalkalden on the Surinam River was stepped-up by using the larger railroad cars and locomotives, which formerly were used in the mine. A third and bigger kiln is being installed at Smalkalden. Production rate of Onverdacht-Smalkalden for 1953 is scheduled at some 750,000 tons of bauxite.

Gold mining was still of minor importance. Shipments totaled 6,135 ounces against 6,500 ounces in 1951. The total includes some gold imported from French Guiana. Though most of the production came as usual from individual "porknockers" working with very primitive methods, there seemed to be a slowly increasing interest for some mechanized effort. Sara Creek Goldfields, Ltd. received a new dragline for its operations near Benzorp on the Lawa River in the southeast section of the country. Surinam Gold Mining Company, Ltd. operated a 20 ton mill near Kabel. The Geological and Mining Service introduced a primitive hydraulic sluicing method in combination with a small mill at Rosebel.

Billiton Company, Ltd. set up a countrywide exploration department and started miscellaneous explorations. The occurrence of asbolan (a mixture of copper and nickel bearing oxides of manganese and cobalt) near Brokopondo was investigated. Samples are being tested in the Netherlands for processing and metallurgy. The asbolan bearing zone is said to extend to the northwestern slope of the Nassau Mountain. The cinnabar deposit near Bonidoro just North of the Nassau Mountain was re-investigated. The Billiton Company also started exploration of the beryl pegmatites near Rama. Beryl and asbolan were discovered in 1946 and 1951 respectively by the Surinam Government Geological and Mining Service.

A representative of the Consolidated African Selection Trust, Ltd. paid a long visit to the diamond exploration project of the Geological and Mining Service. The Beryllium Corporation, Reading,

Pennsylvania investigated the beryl pegmatite near Herminadorp in the north-east section of the country.

Though no definite action was undertaken Surinam Bauxite Company and Billiton Company still studied their kaolin deposits, which are believed to contain together some hundreds of million tons. Random samples proved to be of a grade suitable for the paper making and ceramic industries. Sara Creek Goldfield, Ltd. still investigated the processing and marketing qualities of its kyanite found near Boschland.

## VENEZUELA

Area—330,000 square miles

Currency Unit—Bolivar

Value—\$0.2985 (official)

Chief Mineral Products—Iron, gold, diamonds.

Venezuela is steadily becoming one of the most important iron producers of South America. The Iron Mines Company of Venezuela, subsidiary of The Bethlehem Steel Company, which is working the deposit of El Pao, is slowly reaching the production of 3,000,000 metric tons per year for which its plants were actually designed. Production has been as follows: 198,951 metric tons in 1950; 1,269,610 metric tons in 1951; and 1,969,820 metric tons in 1952.

Production began in May 1950, with an output of 244 metric tons for that month; slowly it increased until it now averages 180,000 metric tons per month. Equipment may be added in the near future to reach 5,000,000 tons production per year, or about twice its present capacity.

The Orinoco Mining Company, subsidiary of United States Steel Corporation, is going ahead with its construction and dredging in the Guayana region of

## Gold Production From The Guayana Gold Mines, Venezuela

Year	Grams
1940	4,565,758
1941	4,056,315
1942	3,607,599
1943	2,570,208
1944	2,417,251
1945	2,389,950
1946	1,510,318
1947	679,000
1948	1,546,784
1949	1,909,067
1950	1,071,888
1951	88,974
1952	143,117

### Asbestos Production from Deposits Near Tinaquillo, Venezuela

Year	Kilograms
1948	85,945
1949	191,542
1950	190,150
1951	259,695
1952	383,470

Venezuela, preliminary to mining and shipping iron ore from Cerro Bolivar, after conclusion of agreement with the Venezuelan government covering channelization of the Orinoco River with its Macareo outlet, and customs arrangements in the area of Orinoco's operations.

Dredging is handled by the McWilliams Dredging Overseas Company and the Gahagan Overseas Construction Corporation. By year's end, the initial dredging run of the Caroni-Orinoco-Macareo channel had been made, and the final job of dredging the planned channel to its initial draft of 26 feet had been over 70 percent completed. Installation of navigation aids will start in 1953. Defenses of the lower Orinoco, including

### Diamond Production in Venezuela

Year	Carats
1949	68,749
1950	60,389
1951	63,226
1952	92,290

bank protection and jetties, are scheduled for 1953.

Morrison-Knudsen of Venezuela began working in April; by year's end the highway subgrade work was over 70 percent complete, and the railroad over 45 percent. Final completion of the former is expected by March 1953, and the latter by December 1953. Dock and storage track has been laid in the port area, and main line trackage out to kilometer 9+500.

The initial 383-foot-long section of the three steel sections of the prospective ore-loading dock at Puerto Ordaz had been towed from Orange, Texas, and installed on its 6-foot-diameter, 100-foot-long steel piles early in June of the past year by the DeLong Construction Company, sub-contractors to Raymond Pile of Venezuela.

The third and last section was in place by September 1, making a 1,150-foot-long unloading dock for the big construction jobs now well underway. On the hillside opposite the dock, earth removal and leveling are well advanced on the ore crushing, stocking, piling, and handling site, and excavations have been begun for the ore handling machinery. Final completion of ore handling arrangements, including the ore loading dock machinery, is scheduled for late 1953.

The diamond production has shown a remarkable increase for the last four years. Over one half of the total production came from the First Mining District (San Pedro de las Bocas-Uriman) where most of the nomadic free diggers have moved since 1951.

Gold production for 1952 shows a slight increase over 1951. Since the miners of El Callao district, operated by The Guayana Gold Mines, stopped operations in 1950 the gold production of Venezuela has been practically negligible. See accompanying table.

Having this in mind, the first step of the Venezuelan Government since the ex-

propriation took place have been to spend \$1,000,000 in the rehabilitation of the mine plant and mill. It is expected that the mines once owned by the Guayana Gold Mines Enterprise will become productive again by the middle of 1953.

Another step taken by the government has been to increase the capacity of the small mill situated in The Callao to treat 50 tons of ore a day. This mill, operated by the government, is for the use of the small mine operators of the district. It



NORTH AMERICA

## CANADA

Area—3,690,410 square miles

Currency Unit—Canadian Dollar

Value—\$1.01

Chief Mineral Products—Nickel, asbestos, gold, copper, lead, uranium, iron.

Canada hit a new high in volume of metals production in 1952, but the value was down to \$728,000,000 from the top figure of \$745,000,000 attained in 1951. The decline was primarily due to a slump in value of gold, nickel, copper, lead, and zinc.

Another significant gain was registered in iron ore production, and indications are that from now on the iron ore picture will continue to improve production-wise, with ore moving from Labrador and Quebec as well as from Steep Rock and other Ontario districts. Iron ore production has also been rising in British Columbia, mostly on Vancouver Island.

The statistical record does not indicate some of the significant developments of the year, of which there were several and widely scattered throughout the country. Exploration for unknown ore deposits was continued intensively throughout the year. Many of the more promising showings have been found adjacent to already well known areas such as in the Sudbury basin of Ontario. Great interest has been shown in northern Saskatchewan which gives indications of becoming an important source of radioac-

tive ores. Nickel-copper deposits have been reported in Manitoba, the Yukon and Northwest Territories, and extensive exploration for minerals has been proceeding in Newfoundland. Large asbestos deposits have been located in the Cassiar district of British Columbia, and one of the most recent developments has been base metals discoveries in the Bathurst district of New Brunswick.

In British Columbia, Consolidated Mining & Smelting Co. is well advanced with its \$65,000,000 expansion program including a new power development at Waneta which alone accounts for an expenditure of \$30,000,000. The lead smelter is also being enlarged.

Good progress has been made by El Dorado Mining & Refining (1944) Limited, at its new mine and custom mill at Beaverlodge in northern Saskatchewan. Sherritt Gordon Mines Limited's copper-nickel program, involving expenditure of some \$34,000,000, is being pushed ahead. The \$17,000,000 leaching plant at Fort Saskatchewan is expected to be ready soon, while the power development and new mining facilities at Lynn Lake, Manitoba, including construction of the railroad from Sherridon are well ahead of schedule.

Noranda Mines Limited has announced that it will spend \$50,000,000 on a sulphur-iron plant at Welland, Ontario, and it will proceed with the mining of the vast copper deposits of the Gaspé Peninsula in Quebec.

The spotlight continues to blaze on the \$200,000,000 program to bring the iron ores of Quebec-Labrador into production, with several United States iron and steel companies and Hollinger North Shore Exploration Company, Limited taking the initiative. These and other developments are rapidly increasing the stature of Canada as an iron-producing nation.

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### Metal Production and Value in Canada 1951 and 1952

Commodity	1952 <sup>1</sup>		1951	
	Quantity	Value	Quantity	Value
Antimony, lbs.	2,500,000	\$ 1,125,000	6,702,164	\$ 1,436,713
Bismuth, lbs.	180,217	405,488	230,298	543,504
Cadmium, lbs.	1,004,623	2,971,511	1,326,920	3,556,145
Cobalt, lbs.	1,303,400	2,806,000	951,607	1,999,612
Copper, lbs.	515,413,485	147,849,770	539,941,589	149,026,216
Gold, fine ozs.	4,419,570	151,458,664	4,392,751	161,872,871
Indium, fine ozs.	400	900	582	1,368
Iron ore, tons	5,205,058	34,186,286	4,680,510	31,141,117
Iron ingots, tons	31,500	1,302,000	15,554	775,143
Lead, lbs.	329,758,679	53,321,978	316,462,751	58,220,146
Magnesium and calcium, lbs.	497,735	4,613,995	381,596	3,618,219
Molybdenite (MoS <sub>2</sub> ), lbs.	280,013,300	298,641	275,806,272	278,058
Nickel, lbs.	149,600	150,908,900	164,905	151,269,994
Palladium, rhodium, iridium, etc., fine ozs.	120,300	7,311,407	107,000	7,050,107
Platinum, fine ozs.	265,600	10,736,775	153,483	14,542,515
Selenium, lbs.	120,300	841,100	382,603	1,239,633
Silver, fine ozs.	24,375,853	20,366,026	23,125,825	21,865,467
Tellurium lbs.	13,700	30,200	8,913	16,400
Tin, lbs.	212,000	254,400	346,718	494,073
Titanium ore, tons	51	456	1,674	9,790
Tungsten (WO <sub>3</sub> ), lbs.	1,222,262	3,666,786	2,833	7,098
Zinc	764,112,772	133,459,938	682,224,335	135,762,845
Total Metals		\$727,916,221		\$745,588,728

1. Tabulation by the Dominion Bureau of Statistics. 2. Preliminary.





## AUSTRALIA

Area—2,974,581 square miles

Currency Unit—Australian Pound

Value—\$2.24

Chief Mineral Products—Lead, zinc, gold, iron, tungsten, tin.

Production of most metals increased but full capacity was not achieved for a variety of reasons. Skilled labor and new equipment were difficult to obtain while Government-imposed financial restrictions proved burdensome.

The future appears sound. Particularly encouraging is the \$50,000,000 dollar loan from the World Bank. Non-ferrous metal projects are among those specifically mentioned in the agreement relating to the loan.

### Queensland

Most important development was at Mount Isa where Mount Isa Mines Ltd. began to operate its No. 2 ore shaft and the new crushing plant for the lead-zinc concentrator. The copper concentrator was under trial and new copper smelter warming up at year's end. Drilling of the main lead-zinc and copper orebodies disclosed additional high-grade reserves.

On a 76.5 square mile prospecting area north of the main orebodies 277,000 tons of 10 percent oxidized lead ore have been proved. This is expected to develop into a reserve of major significance.

Also of great importance were preliminary moves by Mount Morgan Ltd. at Mount Morgan, to develop its Sugarloaf orebody and expand pyrite production.

The dredge of Australia's largest tin producer, Tableland Tin N.L., at Mount Garnet, closed down in July for transfer from Return Creek to Smith's Creek. Resumption of production is expected before the end of 1953.

### New South Wales

The mill of New Broken Hill Consolidated Ltd. commenced operations in September. Current throughput is about 21,000 tons monthly. Monthly capacity is 30,000 tons and provision has been made to expand this as occasion warrants. Present ore tonnage should yield 20,000 tons lead, 28,000 tons zinc, and 430,000 ounces silver annually. Other Broken Hill producers (North Broken Hill Ltd.; Broken Hill South Ltd.; and Zinc Corporation Ltd.) continued to mine a combined tonnage of about 90,000 per month.

Lake George Mining Corporation Ltd. reported an increased profit of £ Stg. 389,727 for the year ended June 30. Its operating subsidiary is Lake George Mines Pty. Ltd. at Captain's Flat (not far from the Federal Capital of Canberra).

In November, the mines of New Occidental Gold Mines N.L., at Cobarr, ceased production due to rising costs. In the final six weeks' operations, 1,200 ounces of gold and 100 tons of copper were produced. Deposits continue in depth but large capital expenditure will be necessary to mine them.

Production of rutile from beach sands continues at a high figure. Towards the end of the year, increasing interest was taken in a number of low grade deposits. The N.S.W. coast and southern Queensland coast are capable of greatly increased outputs of rutile, zircon and ilmenite.

### Victoria

Gold remained the only metallic mineral of major importance but rising costs and a price which offered only a small premium offers little encouragement to producers. The State's yield of 68,628 fine ounces was the best since 1947.

Dredges such as those of Harrierville (Tronoh) Ltd. and Central Victoria Dredging Co. N.L. were primarily responsible for the increased output.

### Tasmania

Mount Lyell Mining and Railway Co. Ltd. (copper and pyrite), King Island Scheelite (1947) Ltd. (scheelite) and Aberfoyle Tin N.L. (tin, and wolframite) were overshadowed only by the Electrolytic Zinc Company which produces electrolytic zinc from Broken Hill concentrates as well as from concentrates emanating from its own mines on Tasmania's west coast. The Electrolytic Zinc Company expanded in four major directions: (1) Increased mining and milling at Rosebery (West Coast); (2) increasing zinc output at Risdon (main works); (3) erection of an ammonium sulphate plant at Risdon; (4) construction of a plant at Risdon for the recovery of zinc from leach-plant residues.

Mount Lyell Mining and Railway Co. Ltd. benefited considerably by an increased domestic copper price allowed in September. Increase was £ A65 making the per ton figure £ A350. The Company's ore reserves are marginal (0.7 percent Cu) and it is aimed to increase output to 12,000 tons per year. The 1952 output (year ended September 30) was 9,048 tons.

King Island Scheelite (1947) Ltd., during the year ended October 31, removed 210,059 tons of overburden, milled 174,217 tons of ore and produced 1,000 tons of concentrates (an increase of

### Australian Metal Production in 1951 and 1952<sup>1</sup>

Metal	1951	1952
Gold <sup>2</sup>	895,536	979,388
Silver <sup>2</sup>	6,978,191	6,900,000 <sup>3</sup>
Copper <sup>4</sup>	12,483	16,500
Refined lead and lead bullion <sup>4</sup>	197,913	202,800 <sup>5</sup>
Zinc (electrolytic) <sup>4</sup>	77,010	86,000 <sup>6</sup>
Tungsten (65% concentrate) <sup>4</sup>	1,711	1,850
Tin <sup>4</sup>	1,459	1,700
Rutile (concentrate) <sup>4</sup>	35,189	36,000

1. Preliminary from the Commonwealth Bureau of Mineral Resources. Geology and Geophysics.

2. Fine ounces. 3. Approximately 4,000,000 ounces additional in exported materials. 4. Long tons.

5. Approximately 15,000 tons additional in exported concentrates. 6. Approximately 75,000 tons additional in exported concentrates.

36 tons). 1953 objective is a mill throughput of 5,000 tons of ore weekly.

### South Australia

Radium Hill uranium field continued to receive most publicity during the year but, as radioactive mineral deposits are subject to security regulations, little reliable information is available. A 12 by 16 foot shaft with steel sets is being sunk to a depth of 700 feet. A concentrating plant is under construction at Port Pirie and will be operated in conjunction with the Broken Hill Associated Smelters Pty. Ltd. A concentrating plant operated at the mine the last six months of the year.

### Western Australia

Gold is easily the most important metal in the state's economy but here, also, rising costs and a nearly-fixed price seriously reduced profit margins.

During the year, Big Bell Mines Ltd. decided to close its mine at Cue, output of which has been 50,000 ounces of gold from 370,000 tons of ore yearly. However, the State Government has agreed to provide £ 100,000 for developing the mine to the 1,250 foot level. An important development was commencement of production by Great Western Consolidated N.L. in the Bullfinch-Southern Cross area. Throughput rate is about 25,000 tons per month, yielding 3,400 ounces of gold. These figures will increase during the coming year.

Captain's Flat mine and differential lead-zinc-copper-pyrite flotation mill of Lake George Mines, Ltd. at Captain's Flat, New South Wales, Australia.



Lake View and Star Ltd. (registered in England and belonging to the Consolidated Goldfields of South Africa group) remains the large operating mine. Annual throughput is over 600,000 tons of goldbearing material, gold recovery being 155,000 ounces.

Of increasing importance are manganese deposits in the Peak Hill area. The present rate of extraction, some 7,000 tons, represents an increase over previous figures but is to be further stepped up to 25,000-30,000 tons. The ore assays about 46 percent Mn and most will be exported to the United States.

1952 was a difficult year for Blue Spec Mining Co. N.L. Early in the year, concentrate was treated on a custom basis by the Broken Hill Associated Smelters Pty. Ltd. at Port Pirie, S.A. A serious fall in local demand for antimony caused the smelter to cancel the arrangement and

concentrates were exported. Isolation and high costs, as well as metallurgical complexity, make the treatment of Blue Spec ore difficult. Towards the end of the year, reports of tungsten occurrences in the mine (in addition to gold and antimony) enhanced the company's prospects.

Of probable major significance for Western Australia were the results of deep drilling in the Kalgoorlie area. Kalgoorlie Southern Gold Mines N.L. (a company formed to investigate the possibilities of the repetition of the Kalgoorlie system of ore veins southwards along the line of the Kalgoorlie syncline) completed the second drill hole in its exploration program. This was completed at a depth of 5,729 feet—believed to be a record for an inclined hole in Australia and, perhaps, in the world. Drilling shows that the Kalgoorlie gold field struc-

ture continues southward and that gold mineralization is present. Only the northern part of the area to be tested has so far been drilled.

A drill hole to 3,367 feet by Gold Mines of Kalgoorlie (Aust.) Ltd., gives promise that the field may also extend to the east.

## Northern Territory

Most publicity was given during the year to uranium, especially in the Rum Jungle area. Preliminary work was undertaken by Northern Drillers Pty. Ltd. but Consolidated Zinc Pty. Ltd., a subsidiary of Consolidated Zinc Corporation Ltd., will mine the deposits and conduct further exploration.

The plant will be provided by the Commonwealth Government, largely from United States dollar aid. It is thought that the mine will be the most "tropical" mining project in the world employing exclusively European labor. For both efficiency and security reasons, labor turnover must be kept to a minimum and it is expected that considerable expenditure will be incurred in providing modern facilities.

All Northern Territory ventures, to date, have been on a relatively small scale. A number of copper producers (such as Peko, Tennant Creek, Gold Mines N.L.) sent high grade parcels of ore to Port Kembla, N.S.W., during the year but mining, freight and treatment costs require about 15 percent Cu before a "breakeven" point is reached.

Reports of probably important lead discoveries at Mainoru, 350 miles southeast of Darwin were made during the year but, once again, remoteness and falling metal prices will militate against development unless exceptionally rich.

The Australian Aluminum Production Commission plans to supply high grade bauxite from deposits on Wessel Island, Arnhem Land, to the metal reduction plant at Bell Bay, Tasmania. Bauxite deposits at Marchinbar Inlet were proved to contain 10,000,000 tons. These deposits should make Australia ultimately self-sufficient in aluminum.

## INDONESIA

Area—733,000 square miles

Currency Unit—Rupiah

Value—\$0.2632

Chief Mineral Products—Tin, bauxite.

Tin production, largely from mines in the Riouw archipelago, reached 35,000 long tons to make Indonesia the world's second largest tin producer in 1952. Banca Island was the largest producer at 21,931 long tons. August output of 2,400 tons was the peak rate. Billiton and Singkep islands produced respectively about 900 and 200 tons monthly.

The bauxite mine on Bintang Island, near Singapore, operated by the Billiton Company experienced labor difficulties. Production at the first of the year was at a monthly rate of 40,000 tons. This was halved at year's end due to suspension of exports to the United States.

The Bengkalis Gold Dredging Company secured governmental approval to sell 75 percent of its output on the Free Market. A great deal of the company's gold mined by the Japanese during World War II was returned.

The AIME Company mined sulphur in the crater of the Patoeah volcano southwest of Bandung. Small Javanese

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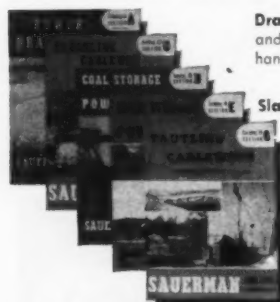
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phosphate deposits, especially in the Cheribon district, were mined and the product used locally without beneficiation. Also on Java reworking of old dumps yielded small amounts of chemical grade manganese which was exported. Manganese ore was discovered and about 2,000 tons mined on Doi Island north of Halmahera Island.

A Japanese mission visited Indonesia in 1952 to investigate the possibility of mining iron ore in South Sumatra.

## NEW CALEDONIA

Area—8,458 square miles

Currency Unit—Franc

Value—\$0.0158

Chief Mineral Products—Nickel, chrome, manganese.

The year 1952 was marked by a very definite increase in the production of nickel and chrome ores.

In 1952 392,000 tons of nickel ore were mined (compared to 252,300 tons in 1951 and 157,650 in 1950). The Le Nickel Company produced 9,670 tons of nickel concentrate with 35 percent nickel (3,730 tons in 1951). The progress has been due to mechanizing the mines, to the improvements in the smelter at Doniambo, to an aerial tram, a mechanical sorter, and additions to the fleet of seagoing transports. Some 110,000 tons of the ore were exported to Japan.

The production of chrome rose from 88,000 tons in 1951 to 107,600 tons in 1952. This improvement, like that of nickel, is due to the recent modernization of the mines and other installations. A new company has become active, the Compagnie Caledonienne des Metaux.

Exports of chrome were 102,600 tons. About 16,850 tons of medium grade manganese ore assaying from 45 to 50 percent manganese were mined and shipped to Australia. In 1951 20,130 tons were mined.

## NEW ZEALAND

Area—103,862 square miles

Currency Unit—New Zealand Pound

Value—\$2.24

Chief Mineral Products—Gold.

Gold dredging continued to be the principal mineral-winning operation.

Gold Mines of New Zealand Ltd.'s, Kanieri dredge, treated about 200,000 cubic yards monthly for a yield of 1,400 ounces gold bullion. Grey River Dredging Co. Ltd., Ikamatua, worked 300,000 to 350,000 cubic yards per month for 900 to 1,100 ounces gold recovery. Kanieri Gold Dredging Ltd. amalga-

mated with Taramakau Gold Dredging Ltd. and the Kanieri dredge may shortly commence working the Taramakau property.

After being out of action for nearly four years following a capsizing in March 1949, the dredge of Arahura Gold Dredging Ltd. is again working. Early production was 223 ounces of bullion from 81,000 cubic yards.

Clutha River Gold Dredging Ltd., Alexandra, produced 6,700 ounces gold in the year ended March 31, 1952 (more than double previous year's output).

In the year ended June 30, 1952, Snowy River Gold Dredging Ltd., Snowy River, recovered 3,150 ounces from 1,077,892 cubic yards. The dredge operated 6,171 hours.

Austral New Zealand Mining Ltd. ceased dredging at Cromwell on January 31. The dredge is ready for transport to Malaya.

The dredge of Barrytown Gold Dredging Ltd., Barrytown, will be transferred to the Mount Garnet area (Queensland, Australia) for working alluvial tin deposits.

## PHILIPPINE ISLANDS

Area—115,707 square miles

Currency Unit—Peso

Value—\$2.00

Chief Mineral Products—Gold, chrome, copper, iron, manganese, lead, silver.

The year was marked by an increase in the amount of production of all the metals due to the strenuous endeavor of the mining companies to boost their output at the same basic costs in order to try to meet the mounting expenses due to the throttling effects of import controls, excessive taxes, labor demands, and the 4.00 peso minimum wage law.

Available figures show that during the first six months of 1952 the gold mining industry incurred losses amounting to around \$33,500 under a total investment of approximately \$18,345,500. It is reliably stated that, if unfavorable conditions continue 11 of the 15 operating gold mines will be forced to cease operations.

Measures favorably endorsed to Philippine Congress by the Philippine Bureau of Mines were:

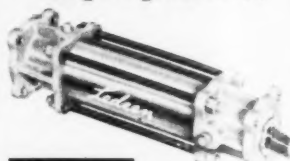
1. Complete elimination of the ad valorem tax on gold production. 2. Exemption from the 17 percent excise tax on sales of foreign exchange. 3. Exemption from the 7 percent compensating tax on direct importation of mining equipment and supplies. 4. Amending the ad valorem tax on gold production so as to standardize the rate at 1.5 percent, instead of the graduated scale of levy. 5. Exempting new gold mines, and old gold mines resuming operations from the cor-

Production of Metals and Ores in the Philippine Islands  
For the Years 1949, 1950, 1951, and 1952<sup>1</sup>

Commodity	1949	1950	1951	1952
Gold <sup>2</sup>	287,844	333,991	393,602	469,408
Silver <sup>2</sup>	218,419	216,034	274,602	693,751
Chromite <sup>2</sup>				
Metallurgical	81,404	41,846	32,736	52,364
Refractory	165,340	208,665	301,835	491,150
Iron ore <sup>2</sup>	370,172	599,095	903,282	1,170,153
Copper <sup>2</sup>	7,007	10,384	12,712	13,264
Manganese ore <sup>2</sup>	26,288	29,867	22,343	20,627
Lead <sup>2</sup>	550	879	571	2,300
Zinc <sup>2</sup>			155	1,596

1. Courtesy Philippine Bureau of Mines. 2. In fine ounces. 3. In Metric tons.

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For air, oil, water, gas or steam operation—in standard and special diameters and stroke lengths.

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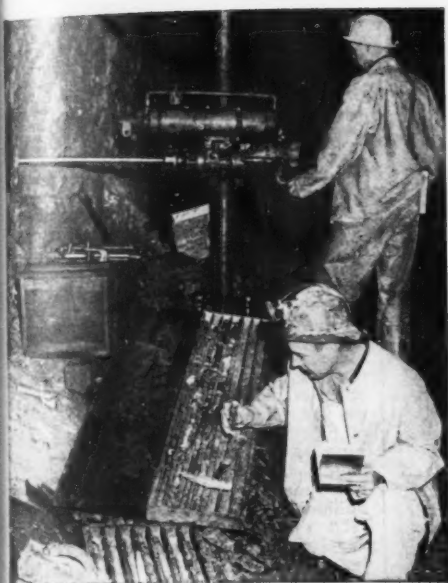
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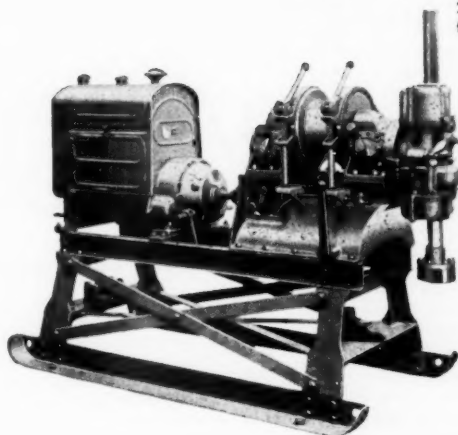
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**CP-8 Diamond Core Drill** — capacities to 1250 ft. with E-EX fittings.

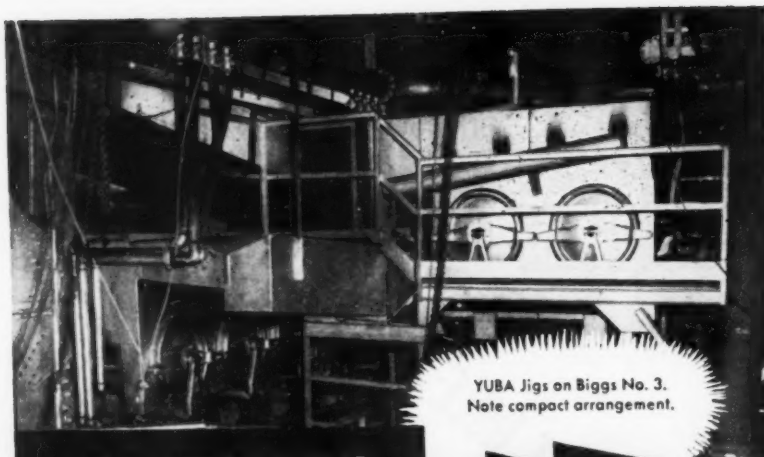


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MINE DEVELOPMENT & DIRECTORY NUMBER, 1953

[World Mining Section—89]

121



YUBA Jigs on Biggs No. 3.  
Note compact arrangement.

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porate income tax for a period of three years.

Although the production of gold has been rising consistently with the reopening of pre-war mines and the enlarged capacities of most operating gold mines the average price of the precious metal in the local free market dropped considerably during 1952, from 126 pesos per fine ounce to around 103 pesos.

This explains the decline of three percent in value of gold produced in spite of the fact that the actual output of the metal increased some 14 percent.

As in previous years activities in base metal mining centered around iron, copper, chromium and manganese. Prospecting for other minerals, such as uranium, molybdenum, antimony, and nickel was in progress. Continued interest was also shown in clay minerals and other ceramic industrial materials. For the first time since 1946 and 1947, value of base metal production, overtook and surpassed gold and silver production by more than 9,000,000 pesos. There are 18 base metal producing mines in the Philippines.

Of the 73 percent increase in base metal production, the largest came from iron ore of which Philippine Iron Mining Company at Larap, Camarines Norte produced around 1,000,000 metric tons while Elizalde and Company produced most of the rest from Samar and Marinduque mines. Iron is also being developed in Cogayan, Davao and Zamboanga. The large and favorable Japanese demand caused a considerable increased activity in iron mining.

The producer of most of the copper was again the Lepanto Consolidated Mining Company from its huge enargite deposit at Mankayan, some 120 kilometers by road north of Baguio, in the Mt. Province. The company concentrates, by flotation, copper ore to concentrates which it ships to Tacoma, Washington. Some copper concentrates are also derived from the gold ores in the Paracale district in Camarines Norte, and Sungao in northeastern Mindanao. Hixbar on the island of Rapu-Rapu, Albay has found by further exploration to still have large ore reserves. The Japanese thought that they had mined it out during the occupation, but now they are coming back for more. Big mining interest from Japan, with venture capital, were in the Philippines looking for copper and other base metal deposits and caused quite a flurry among prospectors and promoters.

The refractory chromite is produced from the vast deposit of Consolidated Mines at Masinloc, Zambales. It is the largest known chromite deposit in the world and is operated by Benguet Consolidated Mining Company. Improved loading facilities with a conveyor belt direct from shore bins to ships has increased both tonnage shipped and speed of loading.

The Acoje Mining Company has increased its metallurgical chromite production at Santa Cruz, Zambales, by installing a new washing and concentration plant.

In spite of the unfavorable atmosphere, there were five pre-war producing gold mines which were rehabilitated and brought back into production during the past year and a half. Baguio Gold Mining Company and Itogon Mining Company with 400 ton daily capacity cyanide mills started up in the Baguio Mt. Province district. Marsman and Company also brought into production United Paracale, San Mauricio, and Coco Grove (gold dredging) in the Paracale district, Camarines Norte.

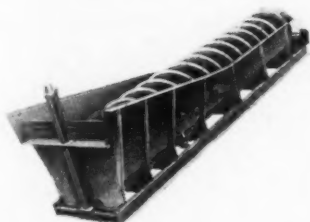


# WEMCO

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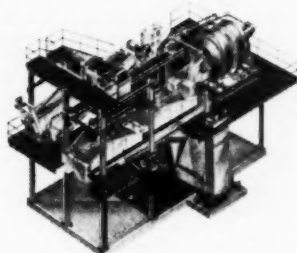
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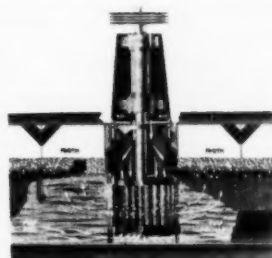
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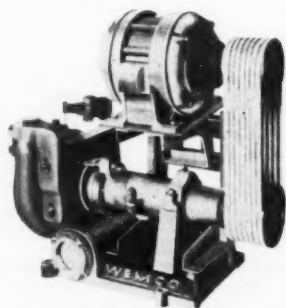
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## EUROPE

### AUSTRIA

Area—32,360 square miles

Currency Unit—Schilling

Value—\$0.03827

Chief Mineral Products—Iron, magnesite, antimony, lead, zinc.

Iron ore production increased from 2,369,672 tons in 1951 to 2,652,588 tons in 1952. From this, 1,735,860 tons came from open-pit mining in 1952, compared with 1,613,160 tons in the previous year. Pig iron production increased from 1,049,438 tons in 1951 to 1,172,711 in 1952, and production of steel from 1,027,793 tons to 1,056,597. The production increase may be attributed to mechanization in the mines, especially in the Erzberg Mountains, Province of Styria, where the Austrian Mining Company (Alpine) carries on operations.

With the support of the Marshall Plan, the United Austrian Steel and Iron Works at Linz put a 100-ton-per-hour conveyor and new blast furnaces into operation.

Austria's annual domestic requirements have been estimated to be about 13,000 tons of lead and about 8,000 tons of zinc. In 1952, 10,000 tons were produced, including the lead obtained from Italian concentrates. To protect the Bleiberg and Kreuth works at Karnten (belonging to the Union of Bleiberg Mining Works, most important producers of lead and zinc in Austria) against fluctuating world prices, a roasting installation and sulphuric acid plant were constructed. The money came partly from the European Recovery Program, and partly from the company. Chalcopyrite from the Mitterberg mine is roasted there. Austria is now in a position to supply its own requirements of sulphuric acid, and to export some.

The production of lead and zinc ore increased from 105,327 tons in 1951, to 150,311 tons in 1952. Production of lead concentrates was 6,229 tons in 1951, and 7,193 tons in 1952 (with 76.51 percent lead); zinc concentrates 6,883 tons in 1951 against 8,619 tons in 1952 (with 57.85 percent zinc).

A modern lead-zinc flotation plant was installed. The lead concentrates are smelted in a 10,000-ton-per-year installation at Gailitz. Zinc concentrates cannot be treated within the country at present, but an electrolytic installation with an

#### Austrian Production of Ores, Minerals, and Metals In Metric Tons in 1951 and 1952

Commodity	1951	1952
Iron ore—total	2,369,672	2,652,588
Iron ore—from open pits	1,613,160	1,735,860
Lead-zinc ore	105,327	150,311
Lead concentrate	6,229	7,193
Refined lead	9,800	10,000 <sup>1</sup>
Zinc concentrate	6,883	8,619
Copper ore	84,168	135,105
Copper concentrate	6,237	9,405
Electrolytic copper	6,413	6,438
Bauxite	8,407	15,180
Aluminum	21,324	36,706
Magnesite	664,024	742,259
Pig iron	1,049,438	1,172,711
Sulphur	405	860

1. Estimated.

output of 10,000 tons annually is under construction. Operation is expected in 1954.

Production of copper ore reached 135,105 tons in 1952, compared with 84,168 tons in 1951, an increase of 50,000 tons. This increase in production can be attributed to the improvements in the development of the largest copper mines in Austria at Mitterberg. In addition, this company is developing a subsidiary working at Buchberg near Bischofshofen. Copper content of the ore varies between 1.05 and 1.8 percent. The south region of Mitterberg has been explored and development is in progress. Copper mining at Rohrerbuhel (Tyrol), started in 1951, seems to be progressing successfully. This new operation is financed partly by the ERP and partly by its own capital.

Production of copper concentrates in 1952 was 9,405 tons (with a content of 2,633 tons of Cu), against 6,236.9 tons (with 1,838 tons of Cu) in 1951. Sulphur was produced as a byproduct to the extent of 405 tons in 1951 and 860 tons in 1952. In 1951, 6,413 tons of electrolytic copper were produced compared with 6,438 tons in 1952. The smelting takes place at Brixlegg.

For the first time, 76 tons of sulphate of nickel were produced in 1952.

There is only one bauxite mine in Austria—at Unterlaussa. Its production is only used as flux in the blast furnaces or in the manufacture of grinding disks.

### CYPRUS

Area—3,584 square miles

Currency Unit—Pound Sterling

Value—\$2.80

Chief Mineral Products—Copper, pyrite, chrome, asbestos, gypsum, gold.

During 1952, the Mavrovouni mine, operated by Cyprus Mines Corporation of Los Angeles, California, produced a total of 743,560 dry long tons. Details of production are given in the accompanying table. The Skouriotissa, Mathiati, and Apliki properties were not operating during the year, but an exploration program was carried on by the company on the latter two leases. The acid treatment section of the company's milling plant was completed and put into operation in March 1952. The plant operated satisfactorily and an additional 10 percent of the total copper content of the mill feed is currently being recovered.

The Hellenic Mining Company Ltd., holding mining leases in the areas of Kalavassos-Asgata, Mitsero-Agrokipia, and Kambia-Sha, produced 197,018 tons of copper bearing pyrite during 1952, compared with 224,174 tons in 1951. Open pit mining operations in the Mitsero-Agrokipia lease involved removal of about 38,000 tons of earth. The company also holds 26 prospecting permits and five leave-to-search permits. Total developments in these areas during the year were 7,822 feet in bore holes, 208 feet in pits, and 2,784 feet in galleries and trenches. Development work in mining lease areas totaled 24,515 feet in bore holes, 380 feet in shafts, and 2,849 feet in drives and crosscuts. Extensive geophysical and geological surveys were undertaken in the mining lease and prospecting permit areas during the year.

The Gypsum & Plasterboard Co. Ltd., a subsidiary of the Hellenic Mining

#### Output from the Cyprus Mines Corporation's Mavrovouni mine on the Island of Cyprus during 1951 and 1952

Commodity	1951	1952
Copper Concentrates <sup>1</sup>	90,700	101,000
Cement Copper <sup>2</sup>	7,000	4,700
Cupreous Pyrites <sup>1</sup>	85,500	122,300
Gold in Concentrates and Precipitates <sup>1</sup>	7,100	5,800
Silver in Concentrates and Precipitates <sup>1</sup>	64,700	72,100
Flotation Pyrites <sup>1</sup>	377,000	457,000

1. Dry long tons.

2. Fine ounces.

Company, Ltd., produced 35,752 tons of gypsum rock from its quarry in the Kalavassos area. Exports of gypsum rock during the year amounted to 36,210 tons. The company's modern plaster and plasterboard plant at Vassiliko started production during the year and 11,472 metric tons of gypsum plaster were produced, of which 7,204 tons were exported. Production of plasterboard began during the last months of the year.

Mining operations of Cyprus Asbestos Mines Ltd. were carried out during the dry months of the year from April to

#### Exports of Pyrite in Tons by the Hellenic Mining Company Ltd. During 1951 and 1952 From the Island of Cyprus

Destination	1951	1952
Western Germany	106,749	110,957
United Kingdom	—	40,656
Holland	7,700	34,721
Switzerland	32,999	9,999
France	35,479	—
Czechoslovakia	11,727	—
Belgium	12,540	—
Totals	207,194	196,333

November. During the 1952 working season, a total of 1,842,403 tons of rock were quarried against 1,599,511 tons in 1951. This tonnage yielded 467,678 tons of raw material, compared with 457,911 tons in 1951. Recovery of marketable asbestos fiber from this amounted to 18,250 short tons, against 19,043 in 1951. 20,015 tons valued at £878,321 f.o.b. were exported, against 16,715 tons valued at £701,898 f.o.b. in 1951. Countries of destination were the United Kingdom, Eire, the Scandinavian countries, Western Germany, Austria, Siam, Japan, Egypt, and Israel.

The Cyprus Sulphur and Copper Company Ltd., a subsidiary of the Esperanza Copper and Sulphur Co. Ltd., operates the Limni mines at Polis. During last year, driving of the main adit into the Kinousa orebody continued. No. 1 shaft was sunk further to connect with the adit. Total development amounted to 5,930 feet. Stopping for direct shipment also continued, while direct shipments started in April and have been continuous ever since. About 20,000 tons of pyrite were exported to Western Germany.

The Cyprus Chrome Company Ltd. of Ayios Nikolaos operated the chrome ore mine on Troodos to a depth of 120 meters and produced 15,000 tons of crude ore during the year. In 1951 17,300 tons were produced. The ore was refined at a concentrating plant below the mine. Exports during 1952 were 12,400 tons of concentrated ore.

The UMBER Corporation of Lamaca Ltd., which incorporates the principal producers of exported umber on the island, reports that only 2,100 tons of umber and ochre were mined during 1952.

## EIRE

Area—27,000 square miles

Currency Unit—Eire Pound

Value—\$2.82

Chief Mineral Products—Lead, zinc, barite, gypsum.

Although extensive prospecting was continued during the year, metal mining was still confined to lead and zinc, with three small properties producing the concentrates. As there are no smelting plants in the country, all products were shipped abroad. The drop in the price of lead and zinc affected the producers in various ways.

Abbeytown Mining Company at Ballisodare in County Sligo, the company usually milling the largest tonnage, stepped up its throughput from 230 tons per day to 300 tons. The ore averaged one percent lead and three percent zinc, occurs in a dolomite limestone, and is mined by open-pit methods.

Silvermines Lead & Zinc Company, Ltd. at Nenagh in County Tipperary stopped production of zinc ore. Zinc oxide was produced from calamine by the Waelz process. The mining was shifted to lead ore and continued milling 200 tons per day of approximately 2.50 percent lead ore.

The Wicklow Mining Company, Glendalough, County Wicklow, mined an ore containing eight percent lead and three percent zinc. It was treated on a toll basis at the Avoca pilot plant of Mianrai, Teorants. The latter, a government concern, continued to develop a large copper-lead-zinc prospect at Avoca. If sufficient tonnage is indicated, it is planned to erect a milling plant to treat the ore.

In the early part of the year, prospecting took place at Manor Hamilton in County Leitrim for lead and zinc. Results proved disappointing but pyrite was discovered in sufficient quantities to warrant further investigation.

Benbulbin Barytes Company, Ltd. in County Sligo shipped high-grade ore direct (without beneficiation) from its mine in the Benbulbin Mountains.

### Lead and Zinc, Concentrate, and Metal Production In Metric Tons In Eire in 1951 and 1952<sup>1</sup>

Commodity	1951	1952
Lead concentrate	1,400	3,400
Lead	980	2,380
Zinc concentrate	2,000	4,000
Zinc	1,040	2,080

1. Preliminary

## FRANCE

Area—212,659 square miles

Currency Unit—Franc

Value—\$0.002858

Chief Mineral Products—Bauxite, potash, iron, lead, zinc, pyrite, tungsten.

France speeded up its metallurgical activity during 1952, with particular regard to steel and aluminum.

French steel production reached a record high of 10,800,000 tons, compared with 9,835,000 in 1951. The Saar's production during the year was 2,823,000 tons of steel, compared with 2,603,000 tons in 1951.

Extraction of iron ore, following the same pattern, jumped from 35,200,000

tons in 1951 to 40,600,000 tons in 1952.

French production of aluminum, 106,000 tons against 91,100 tons in 1951, was nearly two and one half times greater than that of 1938. The principal producer was Pechiney whose output was 87,200 tons in 1952, compared with 74,000 tons in the previous year. Sixteen percent was exported.

There was a noticeable increase in potassium production. In 1952 1,055,000 tons of K<sub>2</sub>O equivalent were produced, compared with 988,000 tons in 1951. Shipments totaled 796,000 tons, compared with 863,000 tons in 1951. Of this amount, 399,000 tons were for metropolitan France and her overseas possessions, while 397,000 tons were for export. Exports abroad have suffered a considerable decline (a total of 18 percent) during the past three years.

## FINLAND

Area—136,054 square miles

Currency Unit—Finnmark

Value—\$0.004348

Chief Mineral Products—Copper, pyrite, gold, tungsten, zinc.

Finland's mining activities in 1952 were characterized by undisturbed production, high production figures, encouraging development of two new mining centers, and modernization of the Outokumpu mine. The year's production compared favorably with 1951 which had established a record in Finnish mining.

Large-scale development is taking place in the Otonmaki iron-titanium mine where operations are expected to start late in 1953. First phase of development calls for production of 600,000 tons of ore, of which 175,000 tons of magnetite concentrate, 75,000 tons of ilmenite concentrate, and 5,000 tons of pyrite concentrate are to be separated. During the year, a 290-meter deep shaft and head frame were completed, along with certain surface facilities and housing units. A crushing plant and concentrator are under construction. Ore will be hoisted in two 6-ton skips by a one-rope koepe hoist. Ore will be crushed underground in a Schlagerbrecher (German jaw

### Vuokseenniska Company's Production for 1951 and 1952 from the Haveri Mine, Finland

Commodity	1951	1952
Ore milled <sup>1</sup>	114,923	122,000
Gold produced <sup>2</sup>	309	380
Silver produced <sup>2</sup>	—	160
Copper in copper concentrates <sup>1</sup>	175	197

1. Metric tons.

2. Kilograms.

crusher). Two-stage reduction in the crushing plant will take place in Symons crushers operating in series with screens and cobbing magnets. Two-stage grinding includes a 9- by 12-foot rod mill followed by a similar ball mill in series with a Dorr rake classifier. Magnetite will be concentrated magnetically, pyrite and ilmenite by flotation. Fullscale production is expected in 1954.

In the Vihanti zinc mine of the Outokumpu Company, development work was continued in 1952. The ore reserves are estimated at 3,000,000 tons, and plans call for a production of 300,000 tons annually. Two shafts will be used—one 250 meters deep, and the other 400 meters deep. Zinc and pyrite concentrates will be produced. A branch railroad connecting the mine with the trunk line was completed in 1952.

In the Outokumpu mine, a new central shaft is under construction. It will be followed by the building of a new crushing plant and a new central concentrator.

## ITALY

Area—119,800 square miles

Currency Unit—Lira

Value—\$0.0016

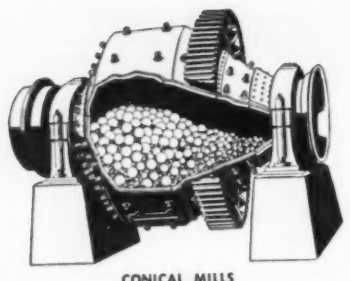
Chief Mineral Products—Mercury, pyrite, sulphur, lead, zinc.

Provisional figures for mine and smelter production during 1952 show considerable advances over the previous year. Record outputs were achieved for zinc concentrates, asbestos, fluorspar, pyrite, aluminum and zinc, while iron and manganese ores, bauxite and sulphur

New reinforced concrete headframe and machine shop at the Otonmaki iron-titanium mine in central Finland. Two Koepe hoists are located in the enlarged top of the 60-meter high headframe.



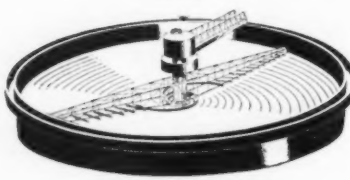




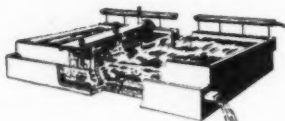
CONICAL MILLS



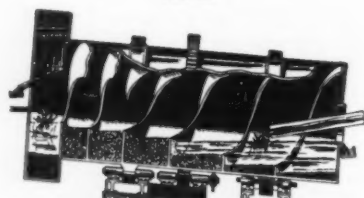
SINGLE-SHELL ROTARY DRYERS



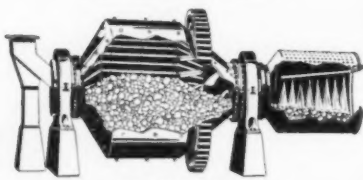
THICKENERS—CLARIFIERS



AUTOMATIC BACKWASH SAND FILTERS



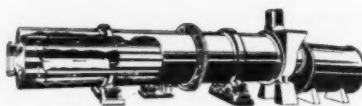
COUNTER-CURRENT CLASSIFIERS  
HEAVY-MEDIA SEPARATORS



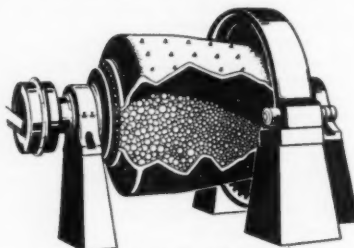
CONICAL SCRUBBERS



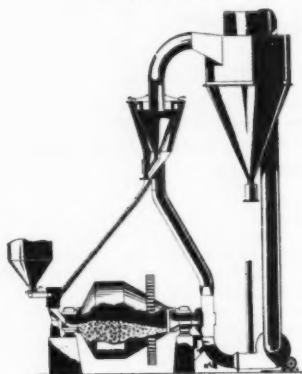
ROTARY COOLERS



DOUBLE-SHELL ROTARY DRYERS



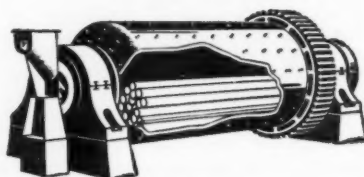
TRICONE MILLS



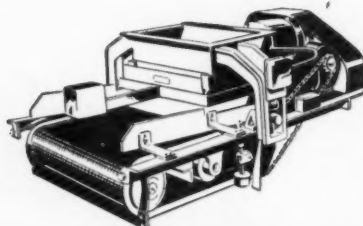
AIR CLASSIFYING SYSTEMS



ROTARY AND SHAFT KILNS



ROD MILLS



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were still below pre-war levels, but rapidly increasing.

A considerable expansion of operating capacity of blast furnaces and steel plants stimulated output from iron and manganese mines. About two-thirds of the additional production of iron ore was supplied by the old mines on the island of Elba, the rest by a group of mines in the Lombardy Alps, which have more than doubled their output, and by Cogne in Piedmont. Exploration and development work was actively pursued in Sardinia, both in the S. Leone area and the Nurra district; production there is expected to reach considerable levels in the current or next year.

In spite of such notable efforts, domestic production was far from adequate; during 1952, imports were slightly over 700,000 tons, though shipments of pyrite cinder from sulphuric-acid plants to iron and steel works reached the all-time high of about 800,000 tons.

Manganese ore output was made up of about equal parts of low-grade manganeseiferous iron ore (15 percent Mn, 35 percent Fe) and of medium-grade siliceous ore (30 percent Mn); two mines in Liguria supplied about three-fourths of the latter.

While production of lead concentrate seemed to reach a stable level, zinc concentrate output rose to the record figure of 176,000 tons, and would probably have shown a still greater gain if the rather uncertain price situation in the second half of the year had not somewhat restrained expansion.

Crude calamine (26 percent Zn)—that is, that part of it which is used as mineral in an electrolytic plant and in a zinc oxide plant near the mine in Sardinia—increased to from 50,000 tons to 55,000 tons.

Preconcentration of lead zinc ores by HMS methods is now widely employed both in Sardinian and in Italian mines; during the year a plant of this kind was placed in operation and another brought to an advanced stage of construction in the biggest mine of Sardinia (Montevecchio).

Enrichment of calamine by flotation has been successfully operated since 1951 in two ore-dressing plants in Sardinia by Pertusola Company; in 1952 S.A.P.E.Z. also developed a process and applied it in two concentrators. Sardinia accounted for 70 percent of zinc concentrate, 91 percent of lead concentrate and the entire crude calamine production.

As for smelter production, while lead declined slightly, zinc surpassed all previous records with 55,000 tons (most of it electrolytic). A new electrolytic plant at Noss (Bergamo) was completed and placed in production during the year.

Five mercury mines, all in the Monte Amiata Area (province of Grosseto) were in production; no developments deserving particular notice were recorded.

Falling antimony prices and rising stocks caused a slackening of activity at the mines and smelters of Azienda Minerale Metallurgica Italiana (A.M.M.I.), sole Italian producer, towards the close of the year, especially in the Gerrei (Sardinia) mines. Exploration in the tuscan deposits (Manciano-Grosseto) disclosed interesting possibilities.

Bauxite production was nearly all from the Puglie mines of Montecatini and S.A.V.A. (Società Alluminio Veneta Anonima); exploration and development in some of the long neglected deposits of Abruzzi was started and a small production obtained. Notwithstanding con-

## Italy's 1952 Mineral and Metal Production in Metric Tons

Commodity	1951	1952	Percent increase (+) or decrease (-) over 1951
Bauxite	174,014	281,458	+ 61.6
Antimony ore	4,537	4,478	- 1.8
Iron ore	552,855	790,237	+ 42.9
Manganese ore	52,721	80,971	+ 53.6
Lead ore (conc.)	64,375	64,526	+ 8.7
Zinc ore	212,822	231,403	+ 8.8
Asbestos (fiber)	22,612	23,938	+ 5.8
Barite	76,541	55,256	- 27.8
Fluorspar	41,019	58,684	+ 43.0
Pyrite	898,186	1,143,454	+ 27.2
Sulphur	214,340	236,417	+ 10.3
Talc	75,996	78,845	+ 3.7
Aluminum (primary)	49,751	52,736	+ 6.0
Antimony (primary)	418	412	- 1.4
Mercury (flasks)	53,800	55,800	+ 3.7
Lead (flasks)	36,000	34,931	- 3.0
Zinc (flasks)	47,409	54,829	+ 15.6

siderable progress in the last two years, bauxite production is still well below pre-war levels, owing to the loss of the Istria deposits. Imports, mainly from Yugoslavia, have been the highest on record: about 200,000 tons.

Pyrite production was the highest ever reached (previous peak 1,060,000 tons in 1940); 80 percent of it was yielded by the group of mines in the province of Grosseto (Tuscany), the most important of which are operated by the Montecatini Company. A flotation plant was completed and put in operation there for the recovery of pyrite contained in the tailing of the gravity concentrator. A similar plant is under construction in another mine of the group. Work at the drainage tunnel of the Boccheggiano mine, started in 1951, progressed satisfactorily. A new producer in this field was the iron mine of Rio (Island of Elba), where, from a pyrite-hematite ore, pyrite was recovered by flotation.

A long strike in the Sicily mines considerably curtailed sulphur production. However, output of crude molten sulphur was the highest of the post-war period. An old mine is being reopened in the Marche district and exploration by drilling, detailed geological mapping, and geophysical prospecting are in progress both in Sicily and Marche.

Fluorspar was in strong demand and production experienced an unprecedented expansion. Main producer was Società Mineraria Prealpina with two mines in the Lombardy Alps (Bergamoe Brescia). Sardinia, which had supplied negligible quantities of fluospar up to 1950, showed promise in 1952 of becoming an important producer. Deposits discovered in 1949 in the Sardara area (Cagliari) were actively developed and supplied a significant amount of acid-grade material in 1952. More than half of the Italian production is exported, mainly to the United States.

Difficulties in placing the excess production of barite in foreign markets caused a drastic reduction of output. The crisis was particularly felt in Sardinia, which used to be the main producer.

## THE NETHERLANDS

Area—15,764 square miles

Currency Unit—Guilder

Value—\$0.2632

Chief Mineral Products—Salt, cement.

Production of rock salt by the Royal Salt Industry in 1952 was 420,000 tons



Blasting in the open pit iron mine of Luossavaara Kirunavaara AB (LKAB) in northern Sweden.

compared to 475,000 in 1951. The company also produced chlorine, hydrochloric acid, and caustic soda.

A spectacular discovery of rock salt was made by the Nederlandsche Aardolie My near the North Sea port of Delfzyl. Plans were underway to use anhydrite from Twente and Groningen as a source for sulphur for sulphuric acid manufacture.

The Ymuiden blast furnace plant produced 600,000 tons of pig iron during the year, part of which was exported to the United States. The affiliated Breedband Company increased steel production using pig iron from the enlarged Ymuiden works.

## NORWAY

Area—124,984 square miles

Currency Unit—Krone

Value—\$0.14

Chief Mineral Products—Iron, pyrite, copper, molybdenum.

Iron ore production was nearly doubled in 1952, thanks to Sydvaranger Iron Ore Company which completed its reconstruction program and was in production for about half of the year. Estimated iron ore production for the country in 1953 should be about 1,300,000 tons.

The Rana Mine Company finished its diamond drill program in the Dunderland Valley, which had been going on for some years. Large quantities of ore are reported to be present and a large iron ore plant is under construction a few miles away at Mo-in-Rana.

Two pyrite mines got ready for production—Skorovas in the north Troendelag district, and Undal in south Troendelag. Diamond drilling revealed large quantities of lead and zinc ore at the Bleikvasli mine in northern Norway. Other geological and geophysical surveying is going on in many districts of northern Norway.

Some silver and rutile were produced, along with large quantities of limestone, dolomite, quartz, and feldspar. Production of aluminum from imported bauxite totaled about 51,700 tons. This is expected to be doubled within a few years when construction of the large plant at Sundalsora is finished.

## Norwegian Production of Metals and Minerals in 1952 in Metric Tons

Commodity	1951	1952
Iron ore <sup>1</sup>	440,000	775,000
Ilmenite ore		118,000
Pyrite ore <sup>2</sup>	700,000	714,000
Copper ore	23,000	23,300
Zinc ore	12,000	12,000
Lead ore		690
Molybdenum ore	210	195
Copper	3,500	3,400
Copper (Skjaersten) <sup>3</sup>	15,000	14,000
Sulphur <sup>4</sup>	100,000	100,000
Graphite	3,500	4,100

1. Includes titaniferous ore. 2. About 300,000 tons of pyrite ore containing chalcopryite smelted for copper and sulphur production. 3. About 33 percent copper. 4. Includes production from pyrite.

## PORTUGAL

Area—34,386

Currency Unit—Escudo

Value—\$0.034542

Chief Mineral Products—Tin, tungsten, pyrite, copper.

Portugal joined the Free World in production of uranium in 1952 when mines in the Urganica district produced small tonnages of uranium ore.

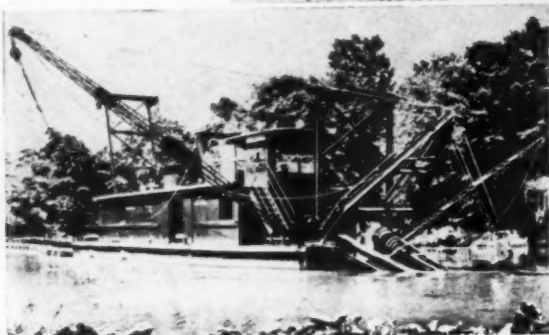
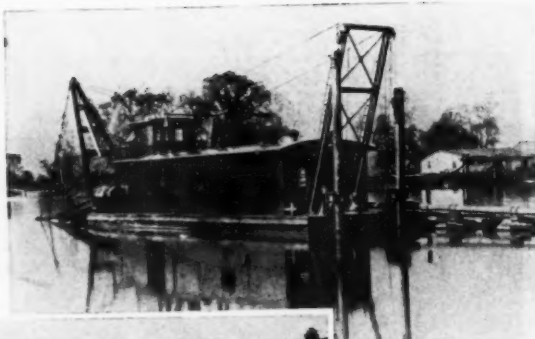
Beral Tin & Wolfram Ltd. concluded another price-fixed contract with the United States to supply about 2,500 long

## Mineral and Metal Production in Metric Tons in Portugal in 1950, 1951 and 1952<sup>1</sup>

Commodity	1950	1951	1952
Antimony	30	38	32
Arsenopyrite	80	8,494	10,473
Arsenopyrite conc. with gold and silver <sup>2</sup>	2,278	2,101	2,070
Arsenopyrite-Cassiterite <sup>3</sup>		818	773
Barite	128	719	350
Beryl	52	102	74
Tin		318	343
Chromite	45	33	107
Lead		1,620	2,065
Manganese ore <sup>4</sup>	110	8,403	11,223
Chalcopryite			
Less than 1% Cu.	450,507	539,061	580,316
More than 1% Cu.	162,983	190,565	175,581
Radioactive minerals	1,689	3,759	(5)
Scheelite <sup>5</sup>		125	178
Wolframite <sup>6</sup>	2,396	4,407	4,418

1. Preliminary figures by the Servico de Fomento Mineiro. 2. With 272 grams gold and 969 grams silver per ton. 3. Contains 16 per cent tin. 4. 42 per cent Mn. 5. Secret, not available. 6. 65 per cent WO<sub>3</sub>.

"Indian Lake" dredge, powered by 8 cylinder, 4-cycle Superior Diesel rated at 260 HP.



"Portage Lake" dredge powered by supercharged Superior Diesel developing 450 HP.

## SUCTION DREDGES powered by SUPERIOR DIESELS

keep boat channels clear and build permanent land fill  
for Ohio's Division of Parks

The development of Indian Lake recreational area at Russels Point, Ohio, required the removal of silt deposits to clear boat channels and overcome shoreline muddiness resulting from agitation of the silt.

In 1948 an American Steel suction dredge powered by a Superior Diesel was placed in service. Since that time the Superior Diesel has performed dependably and without interruption during thousands of hours of severe, continuous operation during each season, with negligible maintenance costs.

Park Manager Colvin comments, "The Superior has never given a minute's trouble—in fact, the performance of this unit led us to purchase another of the same model to power a new dredge for Portage Lakes."

The Portage Lakes dredge is now in operation—its task is to move *more than a half million yards* of silt to clear the lakes. The pump, driven by its supercharged 4-cycle Superior Diesel handles 1500 to 2000 yards each working day.

Captain Herbert Lewellin, who is in charge of dredge operations at Portage Lakes, says, "Our Superior engine assures us dependable, fast starts and gives excellent performance under any load conditions. We have never had a bit of trouble with this power unit and I can also say that during my entire 37 years of dredging, I have never worked with an engine I like better."


That's the kind of service you can expect from Superior and Atlas Diesels regardless of the way you use them—for dredging, propulsion, power generation, or wherever else you need dependable engines. Write for full details on any kind of diesel engine application—there's a Superior or Atlas Diesel for every power need.

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GENERAL SALES OFFICES  
SPRINGFIELD, OHIO



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DUAL FUEL ENGINES  
GAS ENGINES

Distributor of  Diesels in the U. S. A.

tons of wolframite concentrate over a five-year period. The company owns tin and tungsten properties at Panasqueira in the province of Beira Baixa.

In cooperation with the United States, the Portuguese government made plans to undertake a large combined aerial ground search for new mineral deposits in the Portuguese colonies of Angola and Mozambique in southern Africa. Contracts were signed with the E. J. Longyear Company of Minneapolis, Minnesota and the Aero Service Corporation of Philadelphia, Pennsylvania to do the geological and aerial surveys, respectively.

## SPAIN

Area—195,510 square miles

Currency Unit—Peseta

Value—\$0.0237

Chief Mineral Products—Mercury, iron, lead, zinc, potash.

Mining production in Spain during 1952 was greater than in 1951, and even greater production is expected from most mines in 1953. With the return to normalcy in the electric power situation, and greater ease in the importing of essential equipment, increased production should be realized. In addition, the present attractive prices for the majority of mineral products has led to renewed activity in the older mines, as well as investigation of new deposits.

One of the most active mining enterprises was that of pyrite in the province of Huelva. In 1952, 1,934,000 tons were produced, compared to 1,810,000 in 1951, and in 1953 the figure of 2,000,000 tons will be easily surpassed. Important deposits of pyrite were discovered in Herrerias (Huelva), and a serious investigation is being made by the Piritas Espanolas group in the state reserve in Huelva province. This survey has already given positive results in the Grupo Camponario, near the port of Huelva. The foreign demand for this mineral is growing. It will also be used by the new Empresa Nacional Siderurgica (National Steel Company) which is being established in Aviles (Asturias). This undertaking, which will produce 600,000 tons of steel annually, will use the pyrite to make the sulphuric acid necessary for the neutralization of the ammonia produced in the factory.

The iron market was also very active. In 1952, 3,504,000 tons were produced, as against 3,350,000 tons in 1951. Of this amount, 859,000 tons came from Spanish Morocco. Many deposits in Galicia and Asturias are being mined.

There was a notable increase in the production of lead, it having gone from 40,840 tons of metal in 1951 to 44,000 tons in 1952. In 1952, as in 1951, 50 percent of the production was exported. This increase in production was achieved despite the fact that United States equipment acquired with the aid of a United States loan did not arrive, due to procedural difficulties.

The production of blister copper in 1952 was 7,500 tons as against 6,364 in 1951.

The 1952 production of zinc was the same as that of 1951—21,200 tons.

Tin production amounted to 1,113 tons in 1952, as compared with 820 tons in 1951.

Wolframite production in 1952 was 2,374 tons, while in 1951 it was 1,760 tons.



The Mines of Almaden exported some 44,000 flasks of mercury. The new metallurgical installation being constructed by the Pacific Foundry Company is well along, all of the material having arrived at Almaden. It is hoped that the first tests will be made soon. The workings have already reached the 15th level, where the veins are just as rich as on the upper levels. These circumstances indicate a considerable increase in production.

Production figures for 1952 for other minerals were: manganese 28,900 metric tons; aluminum ingots 4,220 metric tons; and antimony (regulus) 500 metric tons.

## SWEDEN

Area—173,000 square miles

Currency Unit—Krona

Value—\$0.193

Chief Mineral Products—Iron, pyrite, copper, lead, zinc.

Expansion, modernization, and mechanization were the features of Swedish mining in 1952. Output per man shift increased, underground loading was mechanized, larger haulage units were introduced, and crushers were placed underground.

In exploration, an extensive airborne magnetometer survey was made by Hans Lundberg. Swedish geologists consider this work as an important complement to their extensive surface magnetometer surveys.

In central Sweden, diamond drilling, shaft sinking, and drifting confirmed the existence of a magnetite deposit which had been discovered by geophysical prospecting. This mine, Vingersbacke, was being developed by the Boliden Mining Company and the Swedish Ball-bearing Co., SKF.

At the northern Swedish iron mines of the Luossavaara-Kirunavaara AB (LKAB) work was continued at an accelerated pace. Open-pit mining was reduced. Ore is trucked from shovels and dropped into crushers in the pit's bottom. Plans have been made for a complete switch to underground mining. A pilot mine has been operated for many years to perfect underground methods. At the firm's Malmberget iron mine, underground stoping methods were modified to fit conditions with emphasis on mechanization. A new hoisting plant was under construction as well as the new sorting plant at Vitafors. A new mill is projected. The combined total output resulting from this expansion was set at 5,000,000 annual tons of ore and concentrates.

At Oxelösund, the Grängesberg Company (TGO) will erect a plant for the production of sponge iron according to the Högana process, for an estimated annual output of 30,000 tons. At Persberg the sponge iron plant of the Uddeholm Company was under construction.

At Tuolluvaara close to Kiruna, the Tuolluvaara Gruv AB completed a new hoisting plant. Together with the new sorting plant it will allow an annual production of iron ore of 300,000 to 400,000 tons.

At Norberg in central Sweden a central shaft for the iron ore mines belonging to the Norbergs Gruvförvaltning is projected, and at the mines of AB Statsgruvor preliminary work for starting operations at the Karlvagn mine continued.

The Stållberg Concern, Ludvika,

## Production and Export of Swedish Mineral Products in Metric Tons in 1952

Commodity	Production	Export
Iron ore	17,000,000	15,700,000 <sup>1</sup>
Pyrite	402,000	10,400
Lead concentrate	27,400	12,000
Zinc concentrate	66,600	81,000
Copper concentrate	47,100	
Tungsten concentrate (60% WO <sub>3</sub> )	435	

1. Of this 11,900,000 from Kiruna and Malmberget mines. To United States, 2,500,000 tons; United Kingdom, 2,100,000; Western Germany, 3,800,000; Belgium-Luxemburg, 1,900,000; Swedish furnaces, 300,000; and others, 1,600,000.

started development work at the new Forsbo iron ore mine in Dalecarlia and is preparing the opening of the Uto iron ore and lead mines in the archipelago near Stockholm.

The new sink and float plant at Striberg will be started in 1953. At Dannemora, in Uppland, where iron ore containing manganese was mined, a new mill was being built.

The new shaft of the Boliden Company, as well as the new plant at Boliden for sulphide ores, is now completed.

A transport and exploration tunnel to the Långsele mine was driven on the 400-meter level. Laisvall will have a new central shaft. A tunnel was driven under lake Laisvall from Sjögruvan to lead ore deposits. The production at Laisvall amounts to 250,000 tons of lead ore a year; at Kristineberg, production reached 530,000 tons of sulphide ore.

The plant of AB Zinkgruvor at Garpenberg, in Dalecarlia, was practically finished to treat lead and zinc ore produced at the mines.

## UNITED KINGDOM

Area—94,279 square miles

Currency Unit—Pound Sterling

Value—\$2.80

Chief Mineral Products—Iron, tin, lead, fluorspar.

During the year there was a slight increase in tin and lead mining, with iron mining showing the greatest upsurge. Otherwise, there was little expansion in the mining industry. It appeared unlikely that there would be any improvement in the situation unless there is some relaxation of taxation which is said to be crippling the industry by discouraging investments.

The iron and steel industry increased its output from 15,640,000 tons in 1951 to 16,418,000 tons in 1952. A planned increase of 1,500,000 tons in 1953 is expected to be sufficient to meet domestic requirements.

English iron ore production is believed to have increased slightly but figures are not yet available. During the last two years, some examination was made of the magnetic iron ore deposits in the north of Scotland, in the Shetland Islands, and on the island of Feltar.

Production of tin has been small for a number of years—just under 1,400 tons of concentrate—and it is not expected to have exceeded this figure in 1952. Full figures are not yet available, but production from Geevor and South Crofty mines amounted to 1,127 tons. These two are the largest producers. Geevor Tin Mines Ltd., near Land's End in Cornwall, mined 57,802 tons of ore during the year, to produce 653 tons of 65

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percent concentrate. Good progress was made in replacing the old plant.

At the South Crofty mine, tin output increased from 33 tons per month at the beginning of the year, to about 46 tons at the end of 1952. The company had been set back in production in 1951 by flooding of the mine, coupled with a labor shortage. Italian miners helped to fill the labor need. At the subsidiary Castle-an-Dinas wolframite mine, shaft sinking continued in order to explore the deposit at greater depth.

The New Consols mine near Gunnislake in Cornwall was closed down and pumps withdrawn from the lower levels, after development results were disappointing. The mine had been reopened in 1948 as a promising tin deposit.

Development of two new tungsten mines were in progress. The Wolfram Prospecting Syndicate continued to reopen the Trebartha mine and some production was reported, while small production also came from a mine adjoining the Trebartha.

While figures are not available for lead and zinc production it is expected to show an increase over 1951 because of the reopening of lead mining in North Wales and in Derbyshire, and increased zinc mining by Halkyn District United Mines and Anglo-Austral Mining Company. For the period covering June 1951 to June 1952, Halkyn produced 2,153 tons of lead concentrate and 226 tons of zinc concentrate from 24,709 tons of ore milled. Anglo-Austral reopened the Hagg's zinc mine in the Nenthead district of Cumberland.

A new company was formed by Derbyshire Stone Company Ltd. and the Selection Trust Group to develop a lead prospect in Derbyshire which had been diamond drilled.

In Scotland, prospecting was carried out during the year around Leadhills and Wanlockhead. Plans for development of the area have been made by the Siamese Tin Syndicate and Bangrin Tin Dredging Ltd., in conjunction with Rio Tinto Ltd.

Fluorspar production remained about the same, with major output coming from Derbyshire Stone Company's Masson mine near Matlock, and from Weardale Lead Company's plant in County Durham. Anglo-Austral continued to develop the Cambookeels mine in Weardale, while United Steel Companies reopened the Blackdene mine and started construction of a treatment plant.

Barite mining declined, with a number of mines closing down. The Silverband mine at Westmorland was one of these.

Uranium prospecting continued and some diamond drilling was undertaken by the government near the old Radium mine near St. Austell which was operated for a number of years prior to 1927. Some uranium ore was regularly produced during the year by a private concern operating an old mine known as Wheal Edward near Land's End in Cornwall.

## WESTERN GERMANY

Area—96,600 square miles

Currency Unit—Deutsche Mark

Value—\$0.2381

Chief Mineral Products—Iron, potash, lead, zinc, fluorspar.

As foreshadowed in last year's report on Western Germany in this yearbook,

### Smelter Production in Western Germany in Metric Tons in 1950, 1951 and 1952

Commodity	1950	1951	1952
Aluminum	27,836	74,132	100,474
Lead <sup>1</sup>	141,519	149,680	135,473
Copper (refined)	198,125	204,848	187,566
Zinc (excluding dust)	136,088	148,465	150,804
Tin (unalloyed)	817	848	1,430
Tin alloys	2,812	2,440	3,087
Solder	6,292	6,105	5,700
Pig iron	9,473,000	10,697,000	12,877,000
Steel ingots and castings	12,121,000	13,506,000	15,806,000

1. Includes lead produced by battery manufacturers.

increases in non-ferrous metal mine output in 1952 were moderate, totalling 5 percent. The production of pyrite remained about the same as in 1951, while the output of iron ore and potash salts showed advances of 18 and 17 percent respectively.

Whether the mine production of non-ferrous metals can be maintained in 1953 will largely depend on changes in international prices. Further price recessions would mean that some mines would have to work at a loss, which could not be compensated with profits from previous years, since the largest part of all profits is skimmed off by taxation. These mines will have to close down, unless some help comes from the government.

Smelter output of aluminum increased by 35 percent, while lead and copper production decreased 9 and 8 percent respectively. Zinc output remained about the same.

## YUGOSLAVIA

Area—99,208 square miles

Currency Unit—Dinar

Value—\$0.003333

Chief Mineral Products—Iron, bauxite, copper, pyrite, lead, zinc.

Lead and zinc ore production in 1952 remained about on the same level with 1951 output, but lead metal production increased about 13 percent, and zinc metal production about 13.5 percent. Three mines—the Novo Brdo, Veliki Majdan, and the Rudnik, all in Serbia—installed flotation plants during the year. The Lece (lead, zinc, gold) mine was reopened, and a new cyanide and flotation plant installed. Both are to start operations in 1953.

Copper ore production increased 10 percent and blister copper production

three percent over 1951. Bor's electrolytic copper plant capacity was enlarged to 3,000 tons of electrolytic copper monthly. The plant was placed in operation in August 1952; by November production was 3,063 tons. Byproducts were silver, gold, and selenium. Briquetting of copper concentrates was a great success. Briquettes can be charged to water-jacket furnaces, eliminating agglomera-

### Metric Tons and Dollar Value of Metals, Ores, and Ferrochrome Exported from Yugoslavia in First 11 Months of 1952

Commodity	Quantity	Dollar Value
Lead	51,460	\$17,566,700
Copper and brass	19,250	13,053,300
Zinc	7,640	3,090,000
Mercury	460	2,343,300
Silver	80	1,986,700
Pyrite conc.	137,840	2,013,300
Zinc conc.	17,950	1,520,000
Chromite conc.	32,050	1,293,000
Iron ore	155,130	1,076,700
Bauxite	104,350	866,700
Ferrochrome	1,690	876,700

tion. A briquetting plant and a plant for the treatment of copper bearing mine water are under construction. During 1953, sintering will be abandoned.

The large stock work of broken quartz which caps the copper orebody, Tilva Ros of Bor, was found to contain a small amount of gold. A cyanide plant was un-

### Metric Tons of Ore Mined in Yugoslavia in 1939, 1951, and 1952<sup>1</sup>

Commodity	1939	1951	1952
Lead-zinc	774,772	1,188,590	1,185,000
Copper	983,903	1,173,199	1,287,000
Antimony	18,963	55,088	74,600
Bauxite <sup>2</sup>	718,594	453,357	591,000
Chromite	44,852	99,639	108,000

1. December 1952 production estimated. 2. Includes Istria (prewar Italy).

der construction so that the quartz may be treated for gold. The first 1,000-ton-per-day unit will start in 1953.

The Majdanpek pyrite deposit was thoroughly explored and large orebodies containing chalcopyrite, pyrite, and magnetite were discovered and sampled. Future copper production from this deposit is expected to be around 15,000 tons of metal annually. A 6,000- to 10,000-ton-per-day flotation plant is contemplated, with production estimated to start in 1955.

East of Majdanpek, the Ruda Glava magnetite deposit is under development. The Magnetite contains 0.3 to 2.0 percent copper. Magnetite low in copper

### Mine Production in Western Germany in Metric Tons For 1949, 1950, 1951, and 1952<sup>1</sup>


Commodity	1949	1950	1951	1952
Lead ore <sup>2,3</sup>	41,321	46,900	50,700	52,000
Zinc ore <sup>2,3</sup>	58,290	98,400	101,900	105,000
Copper ore <sup>2</sup>	863	1,700	2,100	2,700
Pyrite	452,212	548,961	572,038	565,000
Iron ore, crude weight	9,112,000	10,883,000	12,923,000	15,404,000
Iron ore, iron content	2,436,000	2,939,000	3,474,000	4,097,000
Potash salts, crude weight	7,280,600	8,926,534	10,847,500	12,585,600
Potash salts, K <sub>2</sub> O-content	748,800	1,095,800	1,323,700	1,553,800
Salt, (rock and evaporated)	1,800,000	2,468,600	2,757,800	2,576,000
Graphite	(3)	7,238	10,304	(3)
Fluorspar	(3)	92,539	140,390	117,100 <sup>4</sup>
Barite	(3)	285,226	388,836	267,700 <sup>4</sup>
Bauxite	(3)	4,161	5,381	(3)
Columbium ore	(3)	414	9,760	(3)
Gypsum	(3)	355,783	468,700	(3)
Feldspar	(3)	76,702	98,231	(3)

1. Preliminary. 2. Recoverable metal content. 3. Not available. 4. January through September only. 5. Includes recoverable zinc content of pyrite ore.



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### Metric Tons of Metal Produced in Yugoslavia in 1939, 1951, and 1952<sup>1</sup>

Commodity	1939	1951	1952
Refined lead <sup>2</sup>	10,651	60,758	58,200
Crude zinc <sup>2</sup>	4,918	13,222	14,300
Blister copper	41,643	32,000	32,800
Electrolytic copper	12,463	14,200	21,700
Antimony	1,500	1,228	1,330
Mercury <sup>3</sup>	378	505	504
Aluminum	1,705	2,824	2,820
Bismuth	—	84	100
Silver	72	94	80

1. December 1952 production estimated. 2. Major part of lead, and zinc concentrate exported. 3. Includes Istria (prewar Italy).

will be treated separately, probably by flotation, to eliminate copper as a byproduct.

Low-grade antimony is being concentrated by gravity and flotation, the decline in ore grade being up by increases in ore tonnages. Maximum antimony tonnage of 1,815 tons in 1950 has not been reached since. The Lisa mine has been worked out and smelters there have closed down. All antimony is now smelted at Zajaca; ore comes from Mamutovac and Dolovi, nearby; Brasin, west of Zajaca; Stolice and Dobri Potok near Kropanj; and Bujanovac in southern Serbia where a flotation plant was erected in 1952. A flotation plant is now under construction at Brasin.

Mercury production from Idria is rising steadily; output in 1950, 1951, and 1952 was 495, 505, and 504 tons, respectively. During 1953, reconstruction work will be carried on at smelters and concentrations plants, and improvements are also being made in the transportation system.

### Metric Tons of Iron Ore Mined, Pig Iron and Steel Produced in Yugoslavia in 1939, 1951, and 1952<sup>1</sup>

Commodity	1939	1951	1952
Iron ore mined	663,813	581,352	682,000
Pig iron	101,000	248,000	271,000
Steel	235,000	434,000	442,000

1. December 1952 production estimated.

Bauxite production is nearing 600,000 tons per year, most of it being produced at Lozovac, Dalmatia, 1952 production was 2,500 tons less than in 1951 because of the drought. The new plant at Strnisce, Slovenia, is nearing completion and production is expected by the end of this year.

Chromite concentrates are an important export item. Main producers are the Orasje, Nada, Rabrovo, Lojane and Nizika mines. Several other deposits are being developed or explored. Chromite ore is gravity-concentrated at Gore Petrov near Skopje, Macedonia. Part of the chromite is used for the production of ferrochrome.

Tungsten ore, discovered in northeastern Serbia after World War II, is being produced from the Bosiljkovac and Zeleznicki mines. Another mine, Brodice, is being opened. Gravity concentration is carried out at Blagojev Kamen, concentrates containing 60 percent WO<sub>3</sub> or more. A flotation plant was erected during the year for the treatment of tailings.

Iron ore production was at the prewar level, while iron and steel production increased considerably. Only 155,130 tons of iron ore were exported during 11 months of 1952. The Vares and Ljubija mines were the main producers. Pig iron is produced at Sisak, Jesenice, and Vares.

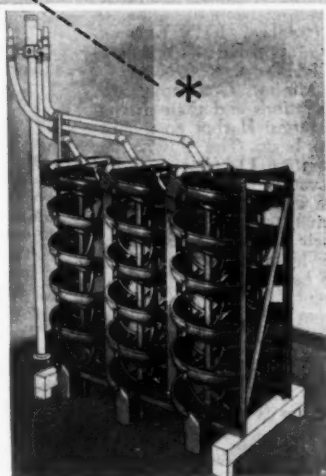
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## BURMA

Area—233,492 square miles

Currency Unit—Kyat

Value—\$0.21

Chief Mineral Products—Wolframite, tin, lead.

Insurrection in Burma since the achieving of independence has been most disastrous for it, and the effect on the development and working of its mineral resources has been similar.

Burma Corporation Ltd.'s lead, silver, zinc and copper mines in the northern Shan States had difficulty in finding skilled labor during the year. The company was re-formed with the Union Government participating in same as a joint venture.

Mawchi Mines Ltd., situated in the Karenni States, was still in the hands of insurgents. The Government took steps to re-occupy this area which has the largest wolframite mine in the world.

In the Tenasserim Division situated in Southern Burma, the main producing companies, except Thabawleik Tin Dredging Ltd. and Kanbauk Mines Ltd., are located in insurgent territory. From reports received, untold damage has been done to the mines which are being worked without any skilled supervision. With the recent fall in the price of wolframite, undoubtedly a number of the present mines will be forced to close down because the workings will have become uneconomical.

In the Tavoy District of the Tenasserim Division, the Tavoy Tin Dredging Corporation Ltd. had only one dredge which had not sustained serious damage. The Khamounghla dredge was sunk by the insurgents, and it is doubtful if the property will warrant rehabilitating. Many of the mines of the Consolidated Tin Mines of Burma, Ltd. have had their timbering removed from the stopes and paddocks etc., and it is doubtful whether these will be rehabilitated. Undoubtedly major falls of ground have occurred. The hydro-electric plant of Kanbauk Mines Ltd. was back in operation but the production had fallen due to lack of proper supervision and general prevailing conditions.

Anglo-Burma Tin Company Ltd. whose property is situated some 42 miles east of Tavoy by road, and which is dependent for its production on hydro-electric power, was run on a tribute basis without any power being employed. Consequently, the output from its prop-

erty fell to a quarter of its normal, and the only bright spot since the war was that the company had been able to redeem £40,000 worth of Prior Lien Debentures and had only an outstanding of £2500 of its 6 percent Debentures remaining. From information received undoubtedly much capital expenditure will be necessary to rehabilitate the mine when conditions become normal. Heinze Burmah Tin Syndicate Ltd. whose property is situated north of Tavoy in the Heinze Basin area had one dredge which broke its back last April and ceased working. It is believed the company is endeavouring to acquire new capital for the purpose of purchasing a new dredge.

Thabawleik Tin Dredging Ltd. situated some 80 miles south-east of Mergui, on the Tenasserim River, was the only company which had been able to operate in a normal manner since the war. As a result, most of the output from the Mergui District came from this area. In 1952 out of a total of 1,172 tons exported from the Mergui District this company produced 983 tons.

The Lenya Mining Company Ltd. closed down operations and their dredge is anchored in Mergui Harbor on a care-and-maintenance basis. The Tavoy Tin Dredging Corporation Ltd. has a dredge at Theindaw situated on the Tenasserim River. This area cannot be worked due to insurgent activity since 1949, and the expiration of their lease. Application for renewal of their lease was made but as yet no decision has been made by the Burma government.

With the recent falls in the price of wolframite, undoubtedly production will continue to fall, and it is inconceivable that the major companies will invest more capital until such time as the security of the country is assured.

## ISRAEL

Area—8,000 square miles

Currency Unit—Israeli Pound

Value—\$1.00

Chief Mineral Products—Potash, phosphate.

Mining exploration is proceeding in various regions of the country, and more especially in the Negev, the southern desert of Israel. A phosphate field recently discovered in the Northern Negev is already being exploited. Production will reach 120,000 to 150,000 tons yearly in the near future, which should be enough to cover the country's needs for phosphate rock. Plans are being made to increase production to 1,000,000 tons of upgraded rock yearly for export purposes. The extraction of potash from Dead Sea brine has been resumed. Production will reach about 150,000 tons in

the near future. Plans are being made to increase it to 300,000 tons yearly.

The mining of glass sand and ceramic clays, discovered lately, is being carried out on a small scale to cover the needs of Israel industry.

Recent exploitations of copper deposits in the Southern Negev have shown the existence of possible reserve of 40,000,000 tons of ore assaying about 1.5 to 2 percent copper. While prospecting proceeds actively, plans are also being made to start production at an initial rate of about 10,000 tons of copper yearly.

Exploration is being carried out with regard to various other mineral deposits including mainly iron ore, manganese ore, and feldspar.

## INDIA

Area—1,578,267 square miles

Currency Unit—Indian Rupee

Value—\$0.21

Chief Mineral Products—Manganese, iron, gold, lead, ilmenite, zinc.

India retained its place in 1952 as one of the major suppliers of manganese to the Free World. Besides its use in steel, Indian manganese ore was also finding a market for its use in the manufacture of batteries. Hand jiggling in

### India's 1952 Export Statistics for Minerals and Ores<sup>1</sup>

Commodity	Metric Tons	Value Export
Barite	2,366	2,80,401
Bauxite	2,463	2,97,748
Beryl	175	4,19,000
Chrome ore	6,210	4,61,822
Kyanite	25,441	99,44,024
Magnetite	38,643	41,74,020
Manganese ore	6,90,301	10,85,99,448
Mica Blocks	1,269	2,17,11,827
Mica splittings	5,167	4,79,20,022
Mica scrap	9,193	1,18,44,027
Mica—other qualities	697	1,07,87,229
Sillimanite	4,426	14,78,474
Zinc concentrate	3,300	16,21,982

1. Statistics only cover the ports of Bombay, Calcutta, and Madras.

small detrital ore was practiced, and one HMS plant was being erected.

A tremendous increase in iron ore production, due to the exports to Japan, was expected to set a new record in value and in volume. The newly mechanized mines at Goa are expected to begin shipping in 1953. At present, Japan imports about 300,000 tons per annum. Expansion of the steel industry in India has been completed; an electric pig iron furnace went into operation on a trial basis at the Bhadravety Iron Works.

The Damodar Valley Corporation was able to supply electricity to the Mica mines in Hazaribagh and greater output was expected but exports to the United States decreased from 13,080 short tons to 8,850 short tons causing many mines to close down. A research group was organized to find new markets and uses for mica.

Gypsum production showed a considerable rise because of the starting of operations at the Sindri fertilizer factory, and the doubling of the size of the cement industry in India. Over 3,000,000 tons of cement were produced.

The drive for self-sufficiency in sulphur continued. The pyrite deposits at Amjhore in the Sahabad district of Bihar

Tin and Wolframite Exports From the Tavoy and Mergui Districts of Burma in Long Tons For 1951 and For 1952 Including Destination of Shipments

Commodity	District	Total 1951	Destination 1952 Shipments				Total 1952
			United Kingdom	New York Straits	Continental Europe		
Tin	Mergui	1,102	18	—	1,154	—	1,172
Tin	Tavoy	623	122	13	381	—	516
Wolframite	Mergui	—	—	—	28	—	28
Wolframite	Tavoy	977	1,044	585	38	49	1,716
Mixed (tin and wolframite)	Tavoy	292	207	208	—	—	515





The Dowa Mining Company modernized its Kosaka copper smelter in Akita Prefecture, Japan during 1952. Roasting and leaching additions facilitate recovery of copper, lead, and zinc from Hanaoka mine ore.

were re-examined and it was estimated that this deposit would supply enough sulphur for India's needs.

A new silver refining plant was established at Calcutta and is to be in production in 1953. It will also produce electrolytic copper as a byproduct.

The lead and zinc mine of Zawar was mechanized, and a flotation mill at the mine produced lead and zinc concentrates. Mills at Tundoo continued to produce lead, and zinc which was exported to Rotterdam for refining.

The Indian Copper Corporation Ltd. had a record year in the company's history. India also attained a record output in aluminum sheets.

For the first time, a substantial industry was established for Assam-Sillimanite near Nongmaweit. Sillimanite boulders were quarried and cut into furnace blocks at Calcutta. Smaller ores were crushed and sold to refractory manufacturers.

The expansion of the Geological Survey and a chain of chemical and petrological laboratories to analyze and conduct research on minerals were other developments during the year. Uranium and gold deposits were located in Damodar Valley area and a wolframite discovery was worked. Geophysical surveys were made for sulphide and manganese ores. An air-borne magnetometer was widely used in the Bengal Basin Survey.

## JAPAN

Area—147,690 square miles

Currency Unit—Yen

Value—\$0.002778

Chief Mineral Products—Chrome, copper, manganese, iron, emery.

Copper production increased during the year over the planned output for 1952, whereas lead and zinc production fell short of the plan. This was the result of an active market situation for copper, compared with the weakened demand and reduced prices for lead and zinc in the free world.

Excessive imports of foreign ore in 1951, due to miscalculation of the demand-supply program, resulted in an

over-supply of lead to domestic consumers. Anticipated recovery of refined lead from scrap was far less than the actual quantity and the surplus brought increasing stocks to smelters. In addition, the government announced the release of some of its stock which had been imported during 1948 and 1949. Thus lead production increased over the demand and the producers were forced to lower the selling price.

In early 1951, an increased production of slab zinc was requested and in 1952 zinc producers continued to increase production. However, increased production and increased imports of for-

### Production of Metals and Ore in Japan in 1950, 1951, and 1952<sup>1</sup>

Commodity	1950	1951	1952
Copper (electrolytic) <sup>2</sup>	39,467	40,866	48,561
Lead (bullion) <sup>2</sup>	10,823	11,116	15,211
Zinc (electrolytic) <sup>2</sup>	32,685	38,244	49,341
Zinc (distilled) <sup>2</sup>	16,150	18,101	20,686
Mercury <sup>2</sup>	—	80.8	102.7
Antimony <sup>2</sup>	—	221.2	534.0
Tin <sup>2</sup>	390	433.4	699.6
Pyrite (ore) <sup>2</sup>	1,910,773	2,162,344	2,577,633
Manganese ore (32% Mn) <sup>2</sup>	—	188,268	185,434
Silver <sup>2</sup>	135,646	143,320	193,439
Gold <sup>2</sup>	147,100	176,900	208,000

1. Preliminary, excepting copper, lead, and zinc.  
2. Short tons. 3. Kilograms. 4. Fine ounces.

oreign ore resulted in an over-supply to domestic consumers. This caused increasing smelters' stocks, and some of the medium-sized mines were threatened by the suspended purchase of domestic custom smelters. Producers then requested the government to export surplus zinc ore, and thereafter 18,900 tons of zinc ore (zinc content—9,450 tons) and 3,600 tons of slab zinc were exported during the year.

Nippon Mining & Smelting Company, one of the leading copper producers, carried out an intensive prospecting program during the year, and continued development of its mines. Promising ore-bodies were found at each of its copper mines—Minenosawa in Shizuoka Prefecture, Ogoya in Ishikawa Prefecture, Kamikita in Aomori Prefecture, Shinmiya in Ehime Prefecture, Hanawa mine in Iwate Prefecture, Nikko in Tochigi Prefecture and Matsuo in Miyazaki Prefecture.

Furukawa Mining Smelting Company has been exploring its promising mines and planning an expansion program. The company carried Heavy Media Separation into practice a few years ago in order to recover as much metal content as possible from lower grade ore of the Ashio mine. While continuing prospecting work at this mine, the company has also been continuing exploration and development of the Taira lead-zinc mine (in Akita Prefecture) and the Kune chalcopyrite mine (in Shizuoka Prefecture). Prospecting work at the Taira mine reached an ore vein 0.2 meters in width and 50 meters in length. Continuous drifting is under way. The vein reportedly contains 6 percent zinc, 2 percent lead, and small amounts of copper.

Most interesting metallurgical development has been the application of the fluosolid method by the Dowa Mining & Smelting Company, and the use of the vertical distillation furnace by the Mitsui Metal Mining & Smelting Company.

Dowa's experience with the fluosolid method was described in the November, 1952 issue of *Mining World*. The installation was built at the Kosaka smelting plant at a cost of 714,394,000 yen, and was completed in October. Initial firing occurred in November. Before the installation of this new process, the plant had used only the pyritic smelting method and recovered copper only contained in the complex ore of Hanaoka mine (copper, lead, zinc).

The Hanaoka mine (located in Akita Prefecture, as is the Kosaka plant) is one of the few open-pit mines in Japan, and one of the leading copper mines. Since the war, mining equipment has been modernized and output has been as much as 17,000 tons of pyrite ore (35 percent sulphur) and more than 10,000 tons of copper ore per month. The larger part of the ore is chalcopyrite containing 1.5 percent copper, 0.2 gram gold, 48 grams silver, and 27 percent sulphur per ton.

Mitsui Metal Mining & Smelting Company (previously Kamioka Mining & Smelting Company) negotiated a contract with the Zinc Master Company of the United States concerning technical assistance in the use of the vertical distillation furnace at the Miike smelting plant (Fukuoka Prefecture). Foundation work was completed in August and four

sets of furnaces have been under construction ever since. Operation is expected in 1953.

A 1,000-ton per month plant has been built by the Toho Aen Mining Company to treat zinc slag from its Annaka zinc smelter in Gumma Prefecture.

Mitsubishi Metal Mining & Smelting Company (previously Taihei Mining & Smelting Company) made plans during the year to build a new zinc smelting plant in Akita Prefecture and will increase zinc production. The Ikune and Akenebe mines will supply the zinc concentrate.

Under construction at the Saganoseki smelting plant in Oita Prefecture is a new unit which uses oxygen to treat copper ore. Nippon Mining & Smelting Company is building the installation.

Other expansion includes the Oage Mining Company which is increasing its 2,000 tons monthly pyrite production at the Oage mine to 2,300 tons, because of a new ore discovery. At the company's Ainai mine, monthly production was 1,400 tons of crude ore (1.2 percent copper). A new 150-ton flotation plant will increase output further.

## THE HASHEMITE KINGDOM OF JORDAN

Area—46,000 square miles

Currency Unit—Jordan Dinar

Value—\$2.80

Chief Mineral Products—Manganese, phosphate.

Development of manganese deposits has been started by the Jordan Research & Exploitation Minerals Export Company. The deposits occur in Dana Canyon (Wadi) 113 miles south of Amman. Initial development centers on pyrolusite and psilomalane outcrops which have yielded samples assaying from 65 to 80 percent MnO<sub>2</sub>. Initial shipments are scheduled for 1953. Transportation is a major difficulty but mining should be easy as much surface float is ore grade.

In the last six months of 1952 12,000 tons of calcium phosphate was mined and exported. Other important mineral products which are exported to Palestine and used locally are fire and pottery clays, and kaolin.

Barite and glass sand deposits were investigated during the year. Known deposits of gypsum, copper, and iron have not been explored.

## REPUBLIC OF KOREA

Area—36,293 square miles

Currency Unit—Won

Value—\$0.0166

Chief Mineral Products—Tungsten, gold, bismuth, iron graphite.

Since liberation from Japan in 1945, the Republic of Korea has been active in developing its rich mineral resources, more than 200 of which have been identified within the country. Stimulation was given to the industry by the Economic Cooperation Administration which provided much assistance. All mining activity ceased in June 1950 with the invasion by North Korea. Since then, mining has been resumed, however, and in 1952 total exports of min-

eral products were valued at \$19,691,316. This was an increase of 200 percent over production in 1951.

In March 1952, the Republic of Korea signed an agreement to sell the entire output of tungsten concentrates to the United States. In November, an operating agreement was signed with the Utah Construction Company covering the principal government-owned tungsten deposits (Sandong & Dalsong). This management-operating agreement will materially increase the output of concentrates, besides training Korean miners in modern production methods. Present output of these two mines is 330 metric tons per month of 65 percent WO<sub>3</sub> tungsten concentrates. Privately owned mines now produce 70 metric tons per month.

The Changhang smelter and refinery of the Samsung Mining Co. reopened in

### Production of Minerals in the Republic of South Korea During 1951 and 1952

Commodity	1951	1952
Gold <sup>1</sup>	7,613	18,636
Copper ore <sup>2</sup>	192	9,819
Electrolytic copper <sup>2</sup>	18,417	34,735
Lead ore <sup>2</sup>	—	366
Lead bullion <sup>2</sup>	—	127,368
Zinc ore <sup>2</sup>	—	625
Bismuth <sup>2</sup>	—	279
Bismuth metal <sup>2</sup>	—	17
Iron ore <sup>2</sup>	—	20,577
Manganese ore <sup>2</sup>	1,747	7,416
Nickel ore <sup>2</sup>	—	1,060
Tungsten 65% WO <sub>3</sub> concentrate <sup>2</sup>	1,061	3,790
Molybdenite ore <sup>2</sup>	—	11,863
Tantalite ore <sup>2</sup>	—	17
Crystalline graphite <sup>2</sup>	—	254
Amorphous graphite <sup>2</sup>	10,222	14,806
Talc <sup>2</sup>	—	3,764
Fluorite <sup>2</sup>	1,789	5,553

1. Fine ounces 2. Metric tons 3. Kilograms

February 1952 after a long shutdown. The only nonferrous smelter in South Korea, its monthly production was 20,000 grams gold; 450,000 grams silver; 30 metric tons electrolytic copper; 100 metric tons lead. A small 15-metric-ton-per month electrolytic zinc unit is under construction.

Mining began on a small scale at the Muju columbite deposit in 1951. 1952 production was 950 kilograms.

The Tong Yang Talc Company, Chungju-Gun, Chungchong Pukto, made shipments of block talc to Japan. Crude lead and copper ore, iron ore, manganese ore, fluorite, and graphite were also exported to Japan. Refined bismuth metal (over 99.5 percent) was shipped to the United States, as was beryl ore.

The United Nations Korean Reconstruction Agency (UNKRA) is working with the Korean Bureau of Mining on long-range development plans for the industry. UNKRA will furnish technical guidance and training in all phases of mining industry, with particular emphasis placed on coal and foreign exchange earning products during the early stages of this joint effort.

## MALAYA

Area—7,800 square miles

Currency Unit—Pound Sterling

Value—\$2.80

Chief Mineral Products—Tin, iron, gold.

Malaya was still at war during 1952 and only toward the end of the year did it become evident that Communist guer-

rilla activity was being suppressed. It is reported this has had a marked psychological effect upon the labor situation with fewer mining men leaving their jobs and more applicants in London for new jobs in Malaya. It is considered very possible that prospecting and survey work will be resumed in 1953 after a lapse of about three years.

Tin production, still the largest in the world, showed a decrease as lower grade areas were being worked and no new areas were coming into production. Average tin price during 1952 was £945 Singapore, against £1,040 in 1951. Output production suffered from the labor shortage and some severe technical difficulties.

A higher gold production was achieved by Raub Australian Gold Mining Co. Ltd. at its mine in Pahang. A new 240-ton-per-day plant was installed, equipped with a new ball mill and 20 stamps. The Malayan government granted a new lease on the concession for another 5 years.

For the second year, the Bulket Bes (Hill of Iron) iron ore mine at Trengganu produced the highest amount in Malaya. In two years, the mine has more than doubled its production and hopes to continue at this rate in 1953. The property is owned by Eastern Mining

### Production of Minerals in Malaya in 1951 and 1952

Commodity	1951	1952
Tin <sup>1</sup>	57,167	50,438
Coal <sup>1</sup>	382,539	314,322
Gold <sup>2</sup>	17,018	19,880
Iron ore <sup>1</sup>	846,803	1,055,120
Ilmenite <sup>1</sup>	43,493	21,581
Scheelite and wolframite <sup>1</sup>	46	4
Columbite <sup>1</sup>	25	4
Bauxite <sup>1</sup>	—	21,570

1. Metric tons. 2. Fine ounces.

and Metals Company. Ore is open pitted from a massive primary deposit. It is moved by endless rope haulage to a gyratory crusher. It is hauled to Ben Gun, loaded on a lighter, and then transferred to an ocean-going vessel.

A bauxite mine in Johore started operations in 1952. Production is said to be rapidly improving. Total output for the year was 21,796 tons with more than 5,000 of this amount mined in December.

## THAILAND

Area—200,000 square miles

Currency Unit—Baht

Value—\$0.0607

Chief Mineral Products—Tin, tungsten.

In 1952, Thailand (Siam) exported about 50 percent of its total tin production to the United States, a comparatively new customer. Tin output decreased slightly during the year when several dredges were closed down. Southern Kinta Consolidated Ltd., which had expanded its gravel pump mining activities in Bhuket, became one of the major tin producers.

Prospecting for cassiterite in the sea between Bhuket and Pangnga was carried on throughout the year by Tomal Prospecting Ltd. which had negotiated with the Ministry of Industry to form a

mining company with the government as a major shareholder. By the end of the year, Kamunting Tin Dredging Ltd. was ready to begin construction of its first dredge at Bangtoe, the company's new property in Thailand.

With equipment from the Mutual Security Agency, the Department of Mines opened three experimental tungsten mines at Kanburi, Bhuket, and

Thailand's Mineral Production in Concentrates in 1951 and 1952

Commodity <sup>1</sup>	1951	1952
Tin <sup>2</sup>	9,502	9,473
Wolframite	1,321	1,601
Antimony	128	137

1. In long tons.

2. Tin in concentrates assaying 72 percent Sn.

Surat. Officials of the department were sent to the United States for special training. The government's mines and their tributors in Kanburi and Ma Sarieng were the most important producers of wolframite in 1952.

Small quantities of lignite were mined at Ma Moh and Krabi by the government for experimental purposes.

## TURKEY

Area—296,190 square miles

Currency Unit—Turkish Pound

Value—\$0.3571

Chief Mineral Products—Chrome, copper, manganese, iron, emery.

A chromite deposit was found at Pozanti near Adana during 1952.

A new iron ore mine was opened near Edremit on the Aegean Sea, and about 100,000 tons of ore were exported. Erection of blast furnace facilities was seriously considered.

Production of Minerals in Metric Tons In Turkey in 1951 and 1952<sup>1</sup>

Mineral	1951	1952 <sup>1</sup>
Bituminous coal	4,729,589	4,846,000
Lignite	1,258,404	1,320,000
Iron ore	225,810	475,000
Chromite	619,420	684,000
Copper (blister)	17,526	23,330
Antimony	5,168	2,551
Lead-Zinc ore	1,452	3,174
Manganese	50,517	104,300
Magnesium	505	900
Sulphur	7,390	8,200
Asbestos	80	—
Boracite	12,015	13,130
Emery	7,363	5,648
Meerschaum (boxes)	330	306
Fluorspar	—	61
Cement	396,416	340,000

1. Estimated. First 11 months actual.

At the Keban lead mine, a flotation section was put into operation, and production is scheduled for early in 1953. A small size smelter is also being considered.

Prospecting for scheelite at Uludag near the city of Bursa revealed a deposit large enough for commercial operation. Drilling is continuing to determine the extent of the deposit.

A new company, Magma Maden Ltd., was formed at Bursa to operate some newly located chrome and molybdenum deposits.

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## AFRICA

### ALGERIA

Area—847,818 square miles

Currency Unit—Algerian Franc

Value—\$0.0022

Chief Mineral Products—Iron, phosphate, lead, zinc, antimony.

Iron ore and phosphate are the two most important minerals produced in Algeria. The production of iron ore is constantly increasing. In 1952, it attained a record figure of 3,600,000 tons. The previous record had been 3,080,000 tons in 1938 just before the war. Despite a strike of two months at the end of the year in the Department of Algeria iron mines the 1952 tonnage exceeded that of 1951 by 800,000 tons.

The Societe de l'Ouenza is the principal producer (2,357,000 tons in 1952 as compared to 2,143,000 in 1951). It was followed by the Societe des Mines de Zaccar (235,000 tons in 1952, 237,100 in 1951) Mokta el Hadid (210,500 tons in 1952, 202,000 in 1951). All of the iron ore produced is exported.

The maximum production of Algerian phosphate seems to have been attained in 1951 at 776,600 tons. A slight decrease was experienced in 1952 with a production of 715,000 tons. The principal producer, the Compagnie des Phosphates de Constantine, produced 580,300 tons in 1952 as compared to 714,800 in 1951.

The extraction of iron pyrite by the Societe des Mines de Fer de Miliana kept to its mean annual production (29,000 tons in 1952, as compared to 31,000 in 1951 and 25,000 in 1950.)

There was a slow improvement for lead production (6,000 tons in 1952, as against 4,600 in 1951 and 2,350 in 1950) and for that of zinc as well (23,600 tons in 1952, as against 21,800 in 1951 and 16,900 in 1950). This 23,600 tons was made up of 5,000 tons of sulphide and 18,600 of calamine.

The production of antimony ore showed a slight drop, 3,600 tons in 1952 compared to the record of 4,830 in 1951.

Copper ore mining, limited since 1950, produced only 160 tons in 1952, as compared with 460 in 1951.

A small production of 30 tons of tungsten ore in 1951 grew to 70 tons in 1952. The deposit is located at Belelieta, to the southwest of Bone.

Although marked by a small decline, the activity of the nonmetallic industry remained encouraging: 72,000 tons of smectique clay (compared to 91,000 in 1951), 11,000 tons of barite (compared to 21,000 in 1951), and 20,000 tons of diatomite (compared to 21,000 in 1951).

### BELGIAN CONGO

Area—905,516 square miles

Currency Unit—Belgian Franc

Value—\$0.0198

Chief Mineral Products—Uranium, copper, cobalt, tin, diamonds, zinc, go'd, manganese.

The production of nearly all the minerals mined in the Belgian Congo is steadily increasing every year.

In 1952, the Union Minière du Haut Katanga produced 205,000 metric tons of copper against 192,000 tons in 1951. The byproducts of this copper industry followed the same trend. The production of zinc concentrate reached 188,000 tons compared to 172,000 tons in 1951. The zinc contained in concentrate amounted to 97,910 tons. The cobalt output was 7,000 tons, 5,715 for 1951.

This constant increase in the activity of the Union Minière is due to the development of its hydroelectric power system. At the end of 1952 the first unit, 30,000 kva, of the new Delcommune power plant was put into service. Two others will be in operation in 1953 and 1954. A new power plant on the Lualaba river (LeMarinel plant) is projected and the first unit is expected to be in service in 1957.

The manganese industry is progressing rapidly: the output for the year manganese metal was 63,839 tons; 35,473 tons in 1951; and 8,500 tons in 1950.

The production of cassiterite remained unchanged: 14,797 tons in 1952 compared to 14,961 in 1951.

The output of tantalite-columbite did not exceed 75 tons, but the mixed cassiterite-tantalite-columbite ores reached a production of 1,249 tons, 1,153 in 1951.

Wolframite production improved to 156 tons in 1952 against 119 in 1951 and the mixed cassiterite-wolframite ore was 908 tons.

Fine gold production increased slightly from 348,000 ounces in 1951 to 362,000 in 1952, but the gold industry is waiting for a readjustment of the gold price to start new developments.

The diamond mines increased production: the output of industrial diamonds reached 11,013,904 carats in 1952; 10,027,103 carats in 1951, and the gem production attained 594,925 carats in 1952; 537,652 in 1951.

In the mandated territory of Ruanda-Urundi the production of gold decreased. The production of cassiterite remained unchanged at 2,641 tons, but the output of wolframite increased from 277 tons in 1951 to 467 tons in 1952, and the production of tantalite increased from 16 to 30 tons.

On the whole, Belgian Congo mining industry is still in full progress owing to the improvement of its equipment. Social progress is following at great pace, to such an extent that the conditions of the native workers are now set as an example by many countries.

### FRENCH MOROCCO

Area—200,000 square miles

Currency unit—Franc

Value—\$0.025

Chief Mineral Products—Manganese, cobalt, phosphate, lead, zinc.

The development of the Moroccan mining industry continues favorably. One can point out, principally, the increase in the production in 1952 of the ores of cobalt, copper, iron, manganese, lead, and zinc, and of lead metal and fluorite. The only decrease phosphate.

All of the Moroccan production, with the exception of combustible minerals, is exported. Mining products formed an important part of the total exports—37 percent by value and 83 percent by weight. They continue to increase.

The 1952 production, 4,000,000 tons, compared with 4,716,800 tons in 1951,

which was considered an exceptional year, came from the two centers of Khouribga and Louis Gerd. The principal buying countries were: Great Britain (480,000 tons), Italy (470,000), Spain (466,000), France (410,000), South Africa (339,000), Germany and the Low Countries (317,000), Sweden (226,000), Belgium (218,000) and Denmark (215,000).

From 1951 to 1952 the production of lead concentrate went from 93,000 to 115,000 tons, and that of zinc from 36,700 to 51,000 tons. Four mines furnished 85 percent of the production: Bou Beker and Touissit (lead and zinc), Aouli and Mib laden (lead). Ten deposits of less importance added some 20,000 tons to the total of the four larger mines. It would seem possible to raise, in short time hence, the annual production of lead concentrate to 120,000 tons (equal to 90,000 tons of lead metal) and the production of zinc, to 80,000 tons containing 40,000 tons of zinc metal.

The lead concentrate from the Bou Beker mine and mill is treated at the nearby Oued el Heimer smelter. In 1951 this smelter treated nearly 34,000 tons from which 18,400 tons of lead and 7,700 tons of gray slag were extracted, while in 1952 it produced 28,000 tons of metal and 9,700 tons of gray slag. The annual capacity of the plant is 50,000 tons of concentrate or 36,000 tons of metal.

The Ait Amar mine produces 96 percent of Morocco's iron ore, the remainder coming from the Kettara mine. The total production was 645,000 tons in 1952 compared with 545,000 tons in 1951. All of the production was exported, half to Great Britain and half to Germany.

Outside of the three large centers of Imini, Bou Arfa, and Tiouine, which produce 80 percent of the Moroccan manganese ore, some 30 small operations in the Ouarzazate Territory furnished almost 50,000 tons of ore. The total 1952 production was 405,000 tons of metallurgical ore and 43,000 tons of manganese dioxide (compared, respectively, with 334,000 and 38,000 tons in 1951). The Imini mine processes its ore to sinter, of which 140,000 tons were turned out in 1952.

The manganese mines to the south of the Atlas Mountains, in particular those of Imini and Tiouine, are troubled by the difficult transportation problem. This is due to the roads which cross the Atlas at 2,250 meters elevation for delivery to Marrakech, 175 kilometers away. A "telepherique" of 29 kilometers, which is to be opened in early 1953, will eliminate the most difficult mountain sections. Almost all of the ore is exported to France, and to the United States which receives 80,000 tons.

The 1952 production was a record 10,000 tons of cobalt ore (skutterudite, hollingite) coming from the Bou Azzer district (compared with 6,260 in 1951). Part of the ore goes to France, and part to Canada where it is processed for the account of the ECA.

Antimony ore (1,600 tons in 1952, against 1,740 in 1951) comes from numerous small deposits in central Morocco. Better equipment and concentration of the better-known ores would permit an improved production.

The Societe Miniere des Rehamna mined 1,900 tons of iron pyrite, a quantity equal to that of 1951.

The Azegour and Ouicheddenne deposits, situated in the Atlas de Marrakech, have produced 2,800 tons of chalcopryrite. Numerous indications of copper ore are present in the southern part of Morocco and, in particular, in the Anti-Atlas

and Djebel Sarha; but the grades are low (1 to 2 percent.)

A few tons (25) of tungsten were extracted from the Azegour mine, known before the war as a molybdenum mine.

The cobalt ores of Bou Azzer contain 15 to 20 grams of gold to the ton; thus it is possible to obtain around 100 kilos of gold annually. The Compagnie Minière du Djebel Mansour extracts ores from the Touit mine, in the Djebel Sarha, which, treated by cyanidation produced 125 kilos of gold and 600 kilos of silver in 1952. In addition, the desilvering plant of the Oued el Heimer lead smelter recovered 5,000 kilos of silver in ingots or granular form.

Among the other mineral products extracted from Morocco in 1952 were: asbestos (600 tons); (smectique) clay (5,500 tons); barite (3,200 tons); beryl (120 tons); fluorite (3,000 tons); graphite (360 tons); ochre (3,100 tons) and mica (2 tons).

## FRENCH WEST AFRICA

Area—1,814,810 square miles

Currency Unit—Franc

Value—\$0.0058

Chief Mineral Products—Bauxite, iron, phosphate.

Two companies account for the diamond production of French West Africa—Soguinex (in High Guinea) and Saremci (in the Ivory Coast). The production was 101,180 carats in 1951 and 121,000 carats in 1952. Two other companies, Sandramine and Soremac, as well as two individuals, Messrs. Dulos and Berger, carry on important exploratory work.

The concentration of titaniferous (ilmenite) and zirconiferous sands in Senegal produced 3,900 tons in 1952, as compared with the same tonnage of ilmenite and 21 tons of zircon in 1951. A plant for the treatment of these sands is being completed at Djifere-Sam Gumar; this will be capable of treating 30,000 tons annually.

The Compagnie Minière de Conakry has finished the equipping of the open pit mine at the deposit on the Kalorem peninsula: crushing mill, railroad joining the mill to the port of embarkation, conveyor belt for the loading of ships, repair and maintenance shops, lodgings, and dispensaries. The first shipments will be made early in 1953 at a rate of 1,200,000 tons for the first year, increasing progressively to 3,000,000 tons annually.

An important deposit is being studied in Mauritania in the vicinity of Fort-Gourand. The ores seem to consist of chunks of 65 to 70 percent hematite. The first studies made by the Societe des Mines de Fer de Mauritania MIFERMA disclose a considerable tonnage, probably in excess of 100,000,000 tons.

The Compagnie des Bauxite du Midi extracts bauxite from its open pit mines on the island of Kassa (opposite Conakry); the ore is washed, crushed and graded in the processing plant and then sent by a conveyor belt, loading directly into ships. After the 27th of September, 1952, the date of the first shipment, 60,000 tons of bauxite were sent to Canada.

The Pechiney and Ugine companies have formed the Societe Africaine de Recherches et d'Etudes pour l'Alumi-

nium with the object of making a systematic study of the bauxite ores in the Kindia region of French Guinea. It is estimated that the tonnage will be sufficient to supply, for several years, an aluminium plant with an annual capacity of 150,000 tons.

Some discussions were in progress for the setting-up of a company to study the manganese deposit in Tiere (Haut Volta). The Mokta-el-Hadid, the Bureau Minier de la France d'Outre-Mer and United States Steel make up this concern.

The Pechiney company mines the alumina phosphates of Thies (Senegal) and extracted 20,000 tons in 1952 as compared with 23,600 in 1951, while the production of lime phosphates in Lam-Lam (Senegal) increased from 4,000 tons in 1951 to 50,000 tons in 1952.

The Societe d'Etudes et de Recherches Minières du Senegal has just been set up for the study and development of a lime phosphate deposit located near Tivavaoune (Senegal). This deposit is estimated at 30,000,000 tons; the grade varies from 60 to 72 percent tricalcium phosphate. This new company is made up of: the Bureau Minier de la France d'Outre-mer, Pechiney and several other phosphate companies (Societe des Phosphates Tunisiens, Compagnie des Phosphates de Constantine and Compagnie Francaise des Phosphates d'Océanie). Some of the phosphate possibilities of the Bas-Dahomey are undergoing a systematic survey by the Comptoir des Phosphates de l'Afrique du Nord.

In Mauritania the Syndicat de l'Inchiri (comprising the Bureau Minier de la France d'Outre-Mer, the Gouvernement general de la France d'Outre-Mer and the Government of Mauritania), which has been replaced by the Societe de Recherches d'Akjout, has investigated a large copper ore deposit located near Akjout about 300 kilometers from the sea and 200 kilometers from Atar. The known reserves as a result of the first test drilling are estimated to be more than 200,000 tons of copper metal, the

ore having a copper content of approximately 300 percent.

The cassiterite of the Massif du Tarradoudji mines (to the northeast of Agades) is concentrated by means of dehydration. 94 tons of the concentrate was exported in 1951 and 165 tons in 1952. The same mines produced 1 ton of wolframite. Some new indications have been discovered in two other ranges of l'Air. (90 kilometers to the north of Agades).

The gold produced in French West Africa continues to be a very feeble competitor of the European production. The latter consisted of 45 kilos in 1952. The native gold industry in the Siguiri region produced a much more important tonnage, but the amount is unknown.

## FRENCH EQUATORIAL AFRICA

Area—912,049 square miles

Currency unit—Franc

Value—\$0.025

Chief Mineral Products—Diamonds, gold, lead, zinc.

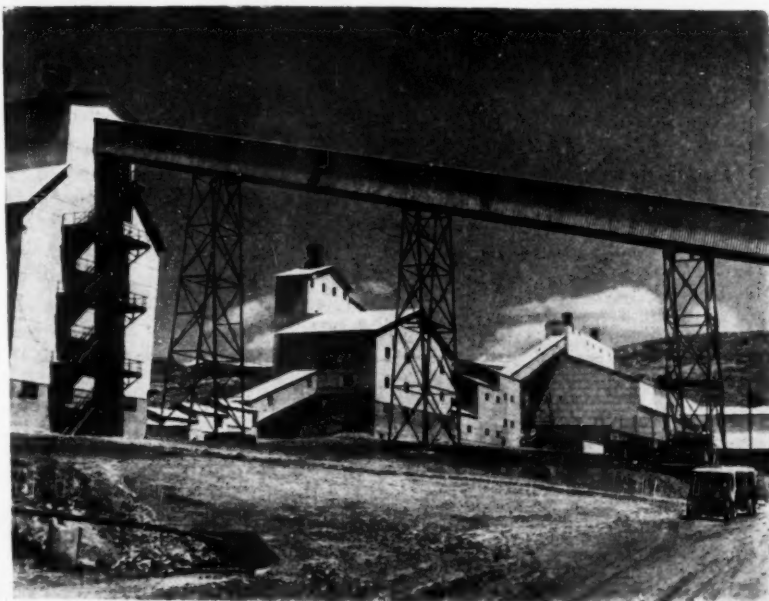
For the first time since 1943, the production of gold did not diminish noticeably in 1952 when 38,350 ounces were extracted, as compared to 43,300 in 1951.

The production of diamonds increased from 147,800 carats in 1951 to 156,000 carats in 1952. Various mining centers were started on large deposits in Est-Oubanghi and in Gabon.

The Societe Minière de l'Oubanghi Oriental and its affiliates have received new aid from the Defense Materials Procurement Agency to encourage the development of diamond production. The loans will be reimbursed by shipments of diamonds to the United States over the period of the next 10 years.

The production of zinc and lead ores has been stationary, respectively at 1,300 and 4,800 tons. Several copper, lead, and zinc deposits of medium importance

The Societe des Mines de Zeldidja's differential zinc-lead flotation mill at Bou Becker, French Morocco, reached capacity production of 4,000 tons of ore per day in 1952. Newmont Mining Corporation and St. Joseph Lead Company hold important interests in the Zeldidja firm.



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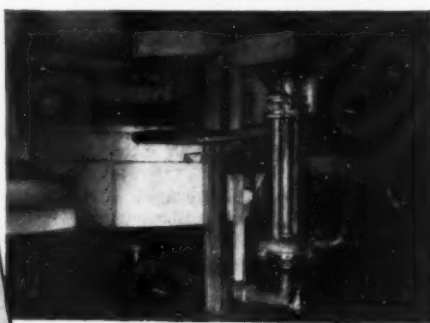
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have been found in the Niari region. Together they will be able to support a profitable operation. In connection with various private groups, the Bureau Miniere de la France d'Outre-Mer (BUMIFOM) has formed the Societe Miniere de Niari (SOMINIA) and l'Exploration Miniere au Congo (EMAC) for the study of these deposits.

The Compagnie Miniere de l'Ogooue (COMILOG) is being formed; it was formed by BUMIFOM, US STEEL, the Compagnie Miniere de l'Oubanghi Oriental and Mokta el Hadid. Its object is the exploration of the manganese deposits in Gabon. These are situated on the north bank of the Haut-Ogooue. First studies show the importance of these deposits. The figure of 300,000,000 tons has been mentioned, of which 50,000,000 tons are in the Mouenda area alone, some 40 kilometers to the northwest of Franceville.

## **GOLD COAST**

Area—96,000 square miles

Currency Unit—Pound Sterling

Value—\$2.80

Chief Mineral Products—Gold, manganese, diamonds, bauxite.

This year (1953) will see the first steps taken towards realizing the greatest project ever undertaken in the Colonial empire—the £144,000,000 project for producing 210,000 tons of aluminium a year from the immense bauxite deposits in the Gold Coast. A preparatory commission was appointed by the United Kingdom and Gold Coast companies and the first stages of the project, which will take five years, are the building of a power station at Ajena and the erection of an aluminium smelter at Kpong, 12 miles away. The smelter will have an initial capacity of 80,000 tons working up to 210,000 tons in, perhaps, 20 years. The British Aluminium Company and the Aluminium Company of Canada, who between them will furnish £42,600,000, will be responsible for aluminium production. The Gold Coast has estimated reserves of 225,000,000 tons of bauxite.

The gold mining industry continued to be hampered by shortage of labor and rising costs which were not offset by selling 40 percent of the gold produced at free market prices. The companies are pressing for permission to sell the whole production at free prices.

Ashanti Company developed on showing particularly rich gold values. On the Number 12 level, crosscut number 141 S.W. has intersected an ore-body having a width of as much as 57 feet and an average assay value of 46.8 dwts. (2.34 ounces of gold a ton). The intersection was made on the Obuasi Reef and the intersection is below the Ayeinm Number 4 lode. Another crosscut on the Obuasi Reef, again at number 12 level—number 105 S.W.—showed 40 feet with an average value of 16.6 dwts (0.83 ounce) a ton.

African Manganese Company Limited had two mines in operation, the principal one at Nsuta and a small mine at Hotop. During 1952, the company produced 820,000 tons of manganese, worth £8,333,000 compared with 832,000 tons in 1951, worth £7,416,000. During 1953 the company expects to reduce production to around 750,000 tons, which is said to be the economic level for the





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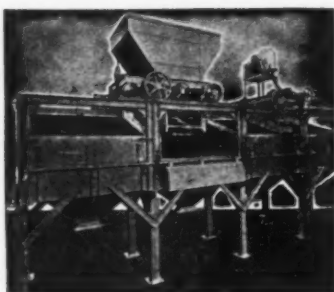


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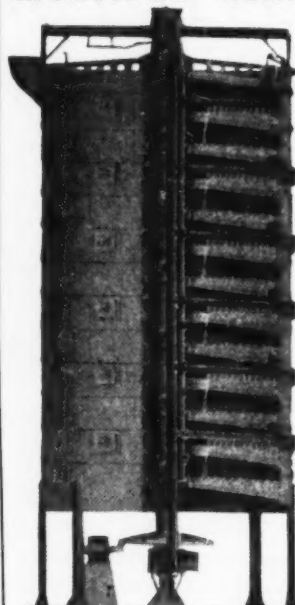
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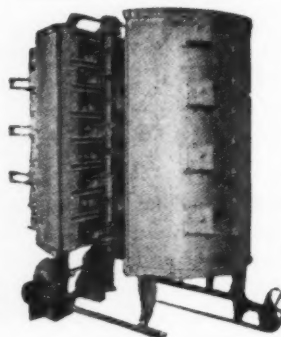
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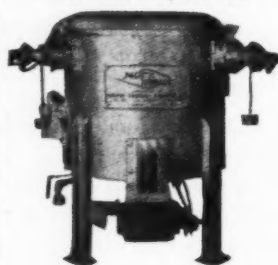
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## Gold Coast Mineral Exports and Value in 1951 and 1952

Commodity	Exports 1951	£ Value	Exports <sup>1</sup> 1952	£ Value
Bauxite <sup>2</sup>	141,000	247,000	65,500	138,000
Manganese ore <sup>2</sup>	832,000	7,416,000	820,000	8,333,000
Gold <sup>3</sup>	698,676	8,564,000	703,000	9,179,000
Diamonds <sup>4</sup>	1,632,000	5,703,000	2,050,000	5,547,000

1. First 11 months actual, December estimated. 2. Dry metric tons. 3. Fine ounces. 4. Carats.

company's operations. The company has overproduced heavily during the past few years to meet extraordinary demands.

The ore produced in 1952 averaged 48 percent manganese. More earth moving equipment has been purchased and now 94 percent of all excavation is mechanical and carried out by Africans—there are only 45 Europeans employed with 5,000 Africans. Over 2,500,000 tons of earth and rock are moved each year, of which half is overburden and half is fed to the washing plant.

In the diamond fields, half of which are worked by C.A.S.T. and the other half by natives, increased mechanization is responsible for the higher production of which a much greater part was industrial stones.

The British Aluminium Company operates the Kanayombo bauxite deposits in the Wiawso district. The sharp fall in exports during 1952 was due to the closing of Takoradi harbor for alterations. Alterations were completed and it is hoped that bauxite exports will in 1953 reach the normal level of around 100,000 tons a year. The bauxite was all exported to the United Kingdom for use by British Aluminium.

## LIBERIA

Area—43,000 square miles

Currency Unit—Dollar

Value—\$1.00

Chief Mineral Products—Iron, gold.

January 1952 saw the commencement of the second year of export of iron ore from Bomi Hills. The average grade of ore exported during the calendar year 1952 was plus 67 percent Fe content, while the total tonnage amounted to 935,641 long tons. Of this amount the greater portion was shipped to the United States of America.

The export picture in gold presented a different problem. No production figures are available; only figures on total export of gold which aggregated 949.16 fine ounces for the year 1952. It is possible that the rumor of possible return to the sale of gold on the Free Market in Liberia was responsible for the retention of gold by producers.

The Bureau of Mines & Geology on behalf of the Treasury Department has exercised supervisory functions over the execution of the Aero Service Corporation contract to prepare an aerial map of the entire country. Not much work was accomplished during the dry season 1951-1952, owing to lack of information concerning the weather and delays in getting started. During the 1952-53 season the work is progressing satisfactorily. The firm agreed to install an airborne geiger-counter which during the last season was operated by a geophysicist on loan from the United States Geological Survey and operated simultaneously with the airborne magnetometer sched-

uled to cover a portion equal to one-fourth the area of the country. The areas designated by the Bureau of Mines & Geology were selected from data collected by ground exploration as the most likely to have mineral deposits of economic interest.

## KENYA

Area—224,960 square miles

Currency Unit—Pound

Value—\$2.80

Chief Mineral Products—Soda ash, gold, kyanite.

The Magadi Soda Company continues to be the most important single producer of minerals in the Colony.

Production of gold again declined being 14,800 ounces valued at £134,500 as compared with 19,000 ounces worth £235,000 in 1951. During the year producers received permission to sell the whole of their output on the free market, and legislation providing for loans on very easy terms for approved gold mining development was introduced. The assistance provided was, however, insufficient to counteract the continued rise in production costs, and the colonies' chief producer, Rosterman Gold Mines Ltd. ceased milling operations during the year.

The Macalder-Nyanza Mines Ltd., operated by the Colonial Development

Corporation Ltd., the capital for which is supplied by the British Government, continued to operate its base metal mine. The deposit is a complex copper-gold-lead zinc ore and production is on a pilot plant basis and still, to a certain extent, experimental. Some 2,400 tons of mixed copper-zinc concentrate was exported during the year.

Messrs. Kenya Kyanite Ltd., and East African Minerals Ltd., continued to produce kyanite and in the former case calcined kyanite or mullite also. The production is sold largely for dollars.

Diatomite production at 5,932 tons showed an increase over 1951. Most of this is used locally in the manufacture of insecticides.

The year was not characterized by any fresh mineral discoveries of importance but prospecting and development is being undertaken, on what may turn out to be important deposits of asbestos and graphite.

The Colonial Development Corporation, in conjunction with New Consolidated Gold Fields Ltd., is investigating by diamond drilling a barite-galenite occurrence near the coast.

Prospecting for gold has almost ceased and other prospecting activity is not very active, due to a certain extent to unrest and terrorist activity among the Kikuyu tribe.

## Metal and Mineral Production in Kenya and Value in Pounds in 1952

Commodity	Quantity	Value in £
Concentrates, mixed copper and zinc	2,400 <sup>1</sup>	Not known
Diatomite	5,932 <sup>1</sup>	63,670
Gold bullion	14,800 <sup>2</sup>	134,500
Gypsum	1,593 <sup>3</sup>	3,584
Kyanite (raw)	500 <sup>1</sup>	4,700
Kyanite (calcined)	7,475 <sup>1</sup>	186,875
Salt	14,835 <sup>1</sup>	124,615
Soda ash <sup>2</sup>	118,371 <sup>1</sup>	1,219,221

1. Metric tons. 2. Fine ounces. 3. Produced by Magadi Soda Company.

South Africa's first uranium was produced in this plant on October 8, 1952 by West Rand Consolidated Mines, Ltd. at Krugersdorp, Union of South Africa.





## NIGERIA

Area—372,674 square miles  
Currency Unit—Pound Sterling  
Value—\$2.80  
Chief Mineral Products—Tin, columbite.

Tin is the main mineral product of Nigeria which is still the world's largest producer of columbite. Amalgamated Tin Mines of Nigeria, Ltd.'s increase of production is due to the new Euclid earth moving equipment which has overcome the disadvantage of the hard ground now encountered. This results in a much smaller yardage of high grade gravel now being treated by the gravel pumps with a consequent saving of scarce water. Work on the N'Gell prospecting shaft was abandoned owing to the unlikelihood of economic mining being possible. The laying of the main pipeline along the left bank of the Mongu river from 180 Dam was expected to be finished by spring of 1953 and the first gravel pumps working.

The increased columbite production was in response to the higher prices paid and the offer of the United States government's bonus. Both tin and columbite reserves are being quickly exhausted and, at present rates of production, known reserves will be exhausted in eight years.

The Nigerian government's geological survey of the distribution of primary granites in the Jos area proved better than hoped for. Some drilling of the deep leads under basalts showed half a pound of columbite per cubic yard. Further investigations will be made.

The Mines Development Syndicate,

representing the Nigerian companies, mainly of British ownership, will go on trying to establish a substantial lead zinc industry in southern Nigeria. The main shortage is capital. Diamond drilling is continuing but some water difficulties were met. The existence of ore bodies has been established and MDS hoped to get mining operations under way in 1953.

## MADAGASCAR

Area—228,707 square miles  
Currency Unit—Franc  
Value—\$0.0058  
Chief Mineral Products—Graphite, phlogopite mica, quartz.

Graphite is the most important mineral product of Madagascar. In 1952 18,800 tons were produced compared to 18,340 tons in 1951, 14,000 in 1950, and 9,140 in 1949. Two thirds of the production is in the form of flakes and one third in the form of powder.

The 1952 production of phlogopite mica was 960 tons, the same as in 1951. The producers of phlogopite, in common with all mica miners, continued to modernize their equipment in order to cut down the labor costs and to lower prices.

The island produced 390 tons of beryl (compared with 530 in 1951) and 21 tons of quartz (24.7 tons in 1951). This quartz is strictly classified for export into piezoelectric quartz, ornamental quartz and quartz for casting (melting).

The production of gold continued to decline, 1,372 ounces in 1952, compared to 1,610 in 1951. It is produced entirely by the small-scale prospectors. This is certainly a far cry from the good old days. In 1909 9,750 ounces of gold were produced in Madagascar, and in 1934 1,180 were produced.

Some exploration permitted an increase in columbite exports from four tons in 1951 to eight tons in 1952.

## NORTHERN RHODESIA

Area—290,320 square miles  
Currency Unit—Rhodesian Pound  
Value—\$2.80  
Chief Mineral Products—Copper, zinc, lead, cobalt, vanadium.

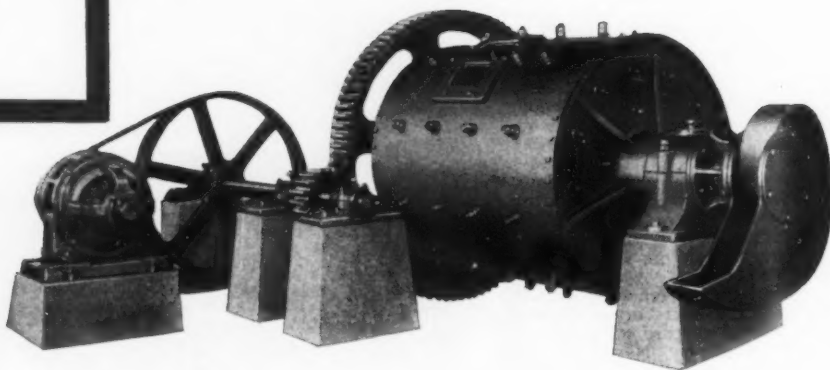
The inclosed table summarizes the mineral production of Northern Rhodesia during the year 1952.

Nigerian Mineral Exports and Value in 1951 and 1952

Commodity	Metric Tons	1951	£ Value	Metric Tons	1952	£ Value
Tin	11,753		£8,974,372	10,575		£7,605,521
Columbite	1,092		838,713	1,228		1,306,688
Wolframite	46		35,736	19		30,840
Others	331		25,000	79		14,000

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Comparing these figures with those for the year 1951, it is noticeable that, although there was little change in the tonnages of the principal metals produced, the value of the total mineral output has increased from £71,000,000 to over £79,000,000. The reasons for this increase are primarily the increase in the price of the principal product, copper, which was only slightly offset by decreases in the prices of lead and zinc, and also the slightly larger proportion of copper produced in the form of the higher-priced electrolytic shapes, as distinct from blister copper.

The production of electrolytic copper might have been expected to be considerably greater in view of the start-up during the year of a new copper refinery at Mufulira Copper Mines Limited and also the increased production of Cathode copper from the oxide leach plant of Nchanga Consolidated Copper Mines Limited, which operated continuously through the year. Production of electrolytic copper was, however, seriously handicapped by lack of power, derived at present entirely from coal. Shortage of coal, supplied by the Wankie colliery in Southern Rhodesia, has again been a serious problem during the year; the shortage was partly due to limited mining capacity from the one colliery, which must supply the domestic and industrial needs of both Rhodesias, and partly to shortage of transport. The search for a source of suitable coal closer to the Copperbelt continued during the year, but although several seams were located, the quality of the coal was not considered satisfactory. A deposit in the Zambesi valley is at present being more closely examined.

Production of lead from Rhodesia Broken Hill Development Co., Ltd., was less than in 1951 by approximately 1,000 tons but zinc production was maintained. Construction of a new lead smelting plant at Broken Hill was almost completed by the end of the year and it was anticipated that production would commence early in the new year. The production of vanadium pentoxide was appreciably reduced during the year and it is planned to suspend vanadium operations upon completion of existing contracts, mainly from market considerations. Plans are, however, proceeding with the building of a small cadmium recovery plant.

There was considerable activity during the year in the search for new mineral deposits, mainly copper, and in the development of the deposits which have already been located. The Rhodesian Selection Trust Ltd. announced the formation of three new prospecting companies to explore areas in the Mwinilunga, Kadola, and Luapula areas and also in their Western Concessions. They have also been carrying out a program of drilling at Baluba. The Chibuluma mine has reached an appreciable stage of development and sinking of the main inclined shaft is well advanced. It is estimated that production will start in 1956. Ore reserves at this property have been estimated at 7,300,000 tons of ore with 5.23 percent copper and 0.25 percent cobalt; plans are being made for the construction of a suitable mill. The Baluba orebody, estimated at between 19,000,000 and 37,000,000 tons, is also copper-cobalt and it is hoped to produce about 2,000 tons of copper and 100,000 pounds of cobalt per month. A deep-drilling program is in progress at Kansanshi with geological and prospecting staff and services provided by Anglo American Corporation of South Africa

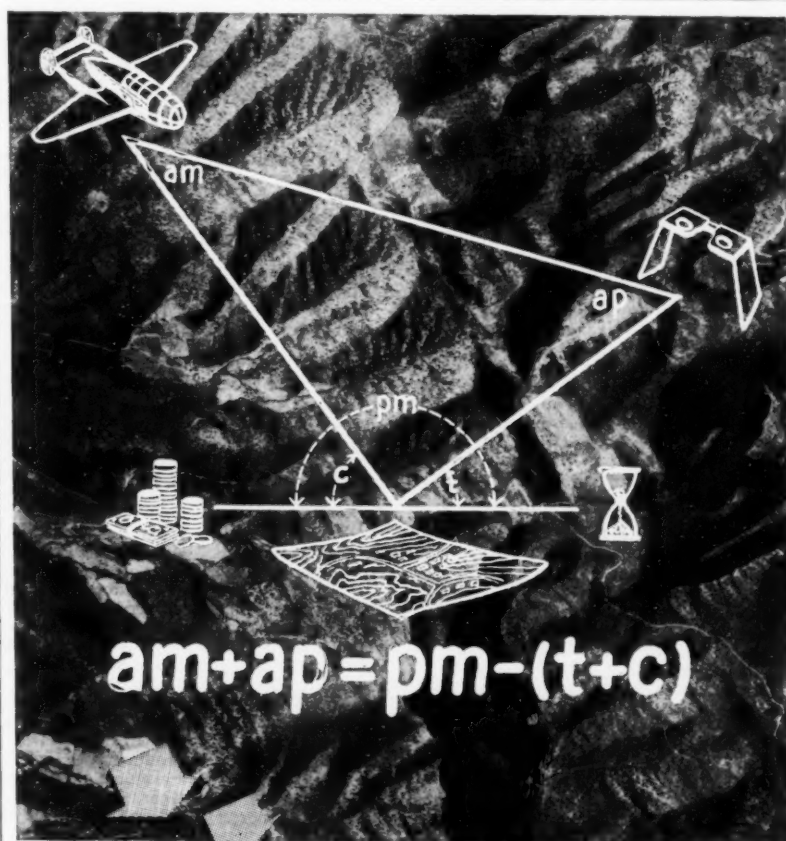
Limited. This again is a copper prospect, which was investigated in the late 1930's indicating an appreciable body of oxidized copper ore. It is hoped to locate a sulphide ore-body by deep-drilling.

A new mining company has been formed, under the auspices of the Rhokana Corporation Limited, to develop the Bancroft mine, named after Dr. J. A. Bancroft, who, as consulting geologist to the Anglo American Corporation of South Africa Limited, was responsible for much of the prospecting work. The company will develop the Konkola and Kirila Bomwe Special Grant areas with proved ore reserves of 80,000,000 tons with an average copper content of 3.60 percent, mainly as sulphides. A mill will be erected at Kirila Bomwe with a capacity of 150,000 tons per month and proved ore reserves would result in a life of 40 years at a

production rate of 4,000 tons of copper per month. Permission to open a new township has been sought from the Northern Rhodesia government. The Rhokana Corporation announced that small tonnages of uranium-bearing ore have been proved at the south end of the Mindola section of the mine. Further exploration to delimit this occurrence is in progress.

Mining developments at existing properties include the completion of sinking of the new Irwin Shaft at Roan Antelope Copper Mines Limited, during September. Progress is being made in the sinking of the new "D" shaft at Nchanga and a sub-vertical shaft at Rhokana. Also at Rhokana, a new shaft intended to mine the South orebody is well advanced and is planned to hoist ore during the coming year.

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# Metal and Mineral Production in Northern Rhodesia in 1952 and Value in Rhodesian Pounds

Commodity	Quantity	Value in £ R.
Gold	2,435 oz. *	30,204*
Silver	312,940 oz. *	90,971*
Cobalt (metal)	635 cwt.	71,145
Cobalt (alloy)	24,973 cwt.	1,048,462
Cobalt (other)	34 cwt.	395
Copper (blister)	200,808 tons	45,373,431
Copper (concentrates)	5,563 tons	\$44,373*
Copper (electrolytic)	111,555 tons	26,463,604
Copper (other)	63 tons*	17,607*
Iron ore	5,943 tons	5,943
Lead	12,600 tons	1,740,500*
Manganese ore	3,926 tons	6,321
Selenium	29,793 lbs. *	33,879*
Tin (concentrates)	15.69 tons*	8,632*
Vanadium Pentoxide	75.97 tons	\$6,976
Zinc	22,800 tons	3,792,975*
Limestone	272,094 tons	122,442
Mica (sheet)	35,800 lbs. *	18,937*
Phyllite	7,522 tons	1,940
Silica rock	4,333 tons	650
Beryl	7 tons	994*
Total Value		£79,429,381*

\* Preliminary, subject to adjustment.

electrolytic copper refinery with a capacity of 36,000 tons of refined shapes per year came into production. It has already been decided to go ahead with plans for doubling the size of this plant. The electrolytic refinery of Rhodesia Copper Refineries at Nkana is being extended to incorporate a plant for the vertical casting of refined shapes and it is planned to start it during 1953. A substantial increase in the production of electrolytic shapes will follow. The new electrolytic cobalt plant at Nkana was started up during the year but has not yet reached full production. The production of cobalt alloy was continued during the year.

Application has been made to the United Kingdom Government by the Rhodesian Selection Trust companies, Roan Antelope Copper Mines Limited, and Mufulira Copper Mines Limited for permission to transfer residence to Northern Rhodesia. This follows the previous move by the Anglo American controlled group, during 1951. The reason given for the moves is that events are moving towards a "shift in the center of political gravity for Northern Rhodesian affairs from the United Kingdom to Rhodesia." This shift is closely bound up with the possibility of the Federation of the two Rhodesias and Nyasaland, which is now being actively considered by all parties concerned. Meetings have been held in London and, arising from these, a detailed plan for a new constitution has been drawn.

Two companies have been recently formed in Northern Rhodesia; Rhodéian

Selection Trust Mine Services Limited and Rhoanglo Mine Services Limited. The functions of these companies are, broadly, as the names imply, to provide coordinated services for the member companies of the parent groups. A Research and Development Division of the latter company is already operating and the erection of pilot plant and research laboratory facilities is well advanced.

## PORTUGUESE EAST AFRICA

Area—240,000 square miles

Currency Unit—Mozambique Escudo

Value—\$0.0345

Chief Mineral Products—Gold, tin, uranium.

Gold mining, which was carried on in previous years by a number of small operators in the Vila de Manica and Tete Districts, declined steadily during 1952 until production was negligible by the end of the year.

A promising alluvial columbite deposit was discovered at Vila Machada, 100 kilometers from Beira. Systematic development work by shallow shafts proved an average content of tantalum and columbium pentoxides at \$2.00 per cubic yard based on the latest DMPA purchase program. Mineral rights were secured over a large area and development work is being continued. Production is expected to start late in 1953.

The Portuguese government closed the 70,000-square kilometer Tete District for prospecting. The area will be surveyed under a project jointly financed by Portugal and the Mutual Security Agency. Also included in the survey is a 5,000-square kilometer concession owned by the Empresa Mineira de Alto Ligonha—a public company with small workings of mica, tantalite, and gold. Prospecting work will include mosaic photography and airborne magnetometric surveys, followed by intensive field work. The Portuguese government remains the sole owner of any mineral deposits located. The Ministry of Overseas Provinces in Lisbon may issue 2½-year prospecting contracts later.

The Tete uranium mines, which produced small amounts of Davidite ore, are now being reorganized and it is expected that larger production will result in 1953 after mechanization of the operations.

The Empresa Mineira de Alto

Ligonha produced a modest amount of cut mica, tantalite, beryl and alluvial gold. Only a small amount of alluvial tin came from the Inhacape tin belt near the Beira-Umtali railway line.

The government dissolved the Brigadas do Fomento Mineiro, a group of technicians who had carried on most of the successful general reconnaissance work in the colony.

## SIERRA LEONE

Area—21,000 square miles

Currency Unit—Sierra Leone Pound

Value—\$2.80

Chief Mineral Products—Diamonds, iron, chrome

Diamond mining employs the large single labor force in the Colony. Sierra Leone Selection Trust, Ltd. has a monopoly of the production and marketing of diamonds of which a third are gems and about two-thirds, industrial stones. The last report of the company said that there had been a sharp fall in both the quantity and value of the stones produced. Some of this fall is blamed on illicit mining and theft which the company is trying to check. Production is believed to be running at a yearly rate of about 500,000 carats worth around £2,250,000.

The company uses Ruston-Bucyrus shovels and walking draglines to remove the overburden before recovering the stones. Native workings provide a part of the production all of which is mar-

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## Mineral Exports From Sierra Leone for the First Nine Months of 1951 and 1952

Commodity	Jan.-Sept. 1951	Jan.-Sept. 1952
Diamonds <sup>1</sup>	374,338	320,716
Iron ore <sup>2</sup>	862,040	1,053,366
Chrome ore <sup>3</sup>	9,500	19,620
Gold <sup>4</sup>	1,932	1,596

1. Metric carats. 2. Metric tons. 3. Fine ounces.

keted through the company and, ultimately, the Diamond Corporation of London.

The colony's main mining wealth is thought to lie in its immense iron ore deposits which are at present being exploited by the Sierra Leone Development Company, Ltd. This company produced 1,300,000 tons of iron ore in 1952 compared with 1,200,000 tons in 1951. So far, the company has worked only the Marampa deposits which are connected by railway to the shipping port of Pepel Point. The company has recently installed a complete new mill at Marampa. Here the ore is beneficiated by Humphreys spiral concentrators with a production capacity of 1,000,000 tons of concentrates a year averaging 66 percent iron. Production will be held at this level at Marampa and the company's main efforts will be concentrated on developing the huge Tonkalili deposits. The company is building an 80 mile railway line from the deposits to the port and, this year (1953), replacing all its steam locomotives with Diesel-electric units on order from the Birmingham Carriage and Wagon Company.

Gold production is dwindling, though it received some stimulus last year from Free Market prices. Most of the production is won by the Pampana Mining Company's dredge on the Pampana river near Tonkalili.

Sierra Leone Chrome Mines, Ltd. holds an exclusive prospecting license over the chromite bearing area of some 70 square miles, but operates only one mine, to the west of Lago.

## SOUTHERN RHODESIA

Area—150,354 square miles  
Currency Unit—Rhodesian Pound  
Value—\$2.80

Chief Mineral Products—Gold, chrome, asbestos, mica, vermiculite.

According to the returns of the Division of Mines and Transport for Southern Rhodesia, the value of mineral production in 1952 was £20,201,282, compared with £15,084,654 in 1951.

The output of gold improved to 496,730.83 fine ounces valued at £6,165,671, compared to 1951 figures of 486,906.58 and £6,043,727. In addition, the gold premium increased to £354,244 from the previous year's value of £45,558. Silver output moved up to 81,355.68 fine ounces valued at £24,797, from the 1951 totals of 79,731.02 ounces valued at £25,290.

The real feature of the 1952 operations was the substantial increase in the value of base metals and minerals produced—namely £13,656,092 compared with £8,969,579 in the previous year. The most important items among these were the following. Asbestos output rose to 84,834.1 tons valued at £6,651,975 from the 1951 returns of 77,663.15 tons valued at £5,452,108.

Production of beryl was more than

maintained at 1,186.47 tons valued at £125,312 compared to 1,109.55 tons and £91,841 in 1951. Outstanding among the base metal and mineral activities was the production of chrome ore, which increased to a record breaking 861,839.03 tons for the second straight year valued at £4,279,440.

The output of block mica was a little more than maintained at 208,848 pounds valued at £65,621 as against the 1951 output of 208,054 pounds valued at £69,844 in 1951. The production of waste mica was a little more than doubled to 1,146,000 pounds from 560,000, but there was little change in the value, which was £1,222 compared with £1,211.

Another outstanding increase during 1952 was in respect of tungsten (scheelite) concentrate. Output was advanced to 429.53 tons valued at £513,135 compared with 234.83 tons and £293,126 in 1951.

The production of tantalum concentrates, which did not figure in 1951 was 5.18 tons valued at £7,085. Another newcomer was manganese ore, the production of which, 1,580.1 tons, was valued at £764. The output of iron ore amounted to 57,149 tons valued at £14,763 in 1951, but improved to 71,464.5 tons and £15,947 in 1952.

## TUNISIA

Area—48,300 square miles  
Currency Unit—Franc  
Value—\$0.0029

Chief Mineral Products—Iron, phosphate, lead, zinc.

1952 brought a sizable increase in the production of the different mineral products, an increase which is particularly marked with regard to phosphate, the production of which increased by 35 percent.

In Regence, 977,000 tons of iron ore were mined (922,750 in 1951). This tonnage supersedes the previous record which was achieved in 1937 with 970,000 tons. The active mines in 1952 were Djerissa (836,200 tons—778,000 tons in 1951); Douaria (94,500 tons—99,100 tons); Tamara (43,300 tons—32,900 tons); and djebel Ank (3,000 tons—12,700 tons). All of the ore produced was exported. The principal importing countries were: England (with 58.3 percent of the 992,500 tons exported), Italy (18 percent), The Netherlands (9 percent), Germany, Poland.

Phosphate production in 1952, which reached 2,264,600 tons (1,679,000 tons in 1951) surpassed that for 1938. Four mines were active during the year: Gafsa, which produced 1,532,400 tons (1,108,800 in 1951); M'Dilla with 431,200 tons (333,000 tons); Kalaa Djerda, with 271,400 tons (206,000 tons); Ain

Kerna with 29,600 tons (31,300 tons). Exports did not exceed 1,752,800 tons (compared to 2,097,700 in 1951). A portion of the phosphate extracted is processed on the spot into superphosphate, 102,400 tons of which were processed in 1952 (as against 166,000 tons in 1951) and 110,000 tons of which were exported to Brazil, New Zealand, Finland, Indochina, and Japan.

At 36,550 tons, lead concentrate production showed an increase over 1951 (33,900 tons) and surpassed that of 1938 (31,600 tons). Ten mines each have an annual production of more than 1,000 tons and furnish nearly 88 percent of the total production. Of these mines, the most important were: El Grefa (6,300 tons); Djebel Semene (5,900 tons); Sidi bou Aouane (4,100 tons); Djebel Hallouf (3,650 tons).

The lowering of the lead price at the end of the year affected production which declined from 3,600 tons for the month of October to 3,130 tons in December. A few of the mines closed down; others are having considerable difficulty in adapting themselves to the lower price.

The Tunisian concentrate is processed in three smelters: Megrine (which processed 21,700 tons of malleable lead); Djebel Hallouf (2,170 tons); and Bizerte (1,630 tons). Almost all of the metal is exported to France.

A noticeable reduction of zinc production is expected. The low grade sulphides of the Ressas Touireuf mine can not be produced at a profit. The low grade calamine section of the mine was closed in October because of the low zinc price.

## TANGANYIKA

Area—362,688 square miles  
Currency Unit—Pound  
Value—\$2.80

Chief Mineral Products—Diamonds, gold, lead, mica.

Diamonds continued to be the most important mineral produced in Tanganyika. The total value of diamonds exported in 1952 showed a very large increase at £4,606,930 as compared to 88,953 in 1951. This was due to the fact that the principal producer of the Territory, Williamson Diamonds Ltd., settled the dispute with regard to its sale agreement with De Beers.

The 1952 diamond export figures include a considerable backlog of production and include part of the production of Williamson Diamonds for 1950 and the whole of its production for 1951 and 1952. This company has also embarked on a big expansion program estimated to cost nearly £1,500,000. The new plant will be capable of treating an additional 3,000 tons of gravel per day. As lower

## Metal and Mineral Production and Value in Southern Rhodesia in 1950, 1951, and 1952

Commodity	1950		1951		1952	
	Quantity	£ Value	Quantity	£ Value	Quantity	£ Value
Gold <sup>1</sup>	511,163	6,344,811	486,907	6,053,727	796,731	6,165,671
Silver <sup>1</sup>	85,549	22,601	79,731	25,290	81,356	24,797
Asbestos <sup>2</sup>	71,527	4,615,490	77,663	5,452,108	84,834	6,651,974
Beryl <sup>2</sup>	932	62,525	1,109	91,841	1,186	125,311
Chrome ore <sup>2</sup>	321,353	1,219,857	330,989	1,530,998	861,839	4,279,440
Tin concentrates <sup>2</sup>	105.4	43,089	95.2	57,140	56.70	31,311
Scheelite <sup>2</sup>	65	15,747	234.8	293,126	429.5	513,135
Lepidolite <sup>2</sup>					1,242	4,645

1. Fine ounces. 2. Metric tons.

# Mineral Exports and Value From Tanganyika in 1950, 1951, and 1952<sup>1</sup>

Mineral	Quantity 1950	£ Value	Quantity 1951	£ Value	Quantity 1952	£ Value
Gold <sup>2</sup>	125,267	824,047	129,439	847,832	130,851	874,814
Diamonds <sup>3</sup>	70,597	746,370	8,593	88,953	331,643	4,606,930
Tin concentrates <sup>4</sup>	129.4	76,078	92.09	67,704	62.10	44,275
Salt <sup>5</sup>	3,936	36,008	3,870	35,496	4,482	42,273
Mica (sheet) <sup>4</sup>	49.05	61,054	69.96	120,370	109.14	144,016
Mica (ground) <sup>4</sup>	58.65	1,223	—	—	14.50	234
Mica (waste) <sup>4</sup>	25	337	—	—	.93	19
Kaolin <sup>4</sup>	18	182	46.86	507	164.46	1,751
Lead concentrate <sup>4</sup>	1,093.36	97,550	2,964.59	334,256	4,837	505,555
Tungsten concentrate <sup>4</sup>	40.50	14,284	39.26	61,007	35.9	45,793
Magnetite <sup>4</sup>	81.57	489	2,672.80	13,539	—	—
Copper ore <sup>4</sup>	8.75	332	—	—	170	840
Lime <sup>4</sup>	70.00	280	190.00	850	—	—
Graphite (crude) <sup>4</sup>	—	—	25.00	669	—	—

1. Estimated. 2. Fine ounces. 3. Metric carats. 4. Long tons. 5. Metric tons.

grade ground will be treated the diamond output will not increase quite in proportion with the increase in tonnage.

The Uruwira Minerals Ltd., again substantially increased production of lead concentrates, although owing to the fall in the price of lead the value did not rise in proportion with the increased tonnage. Loans totalling £1,860,000 have been secured through United States Government agencies to finance the erection of a new plant capable of treating 1,000 tons per day. Construction of this plant is well advanced, and ore reserves totalling 3,000,000 tons averaging 3.8 percent Pb, 0.8 percent Cu, 118 grams silver, and 1.9 grams of gold per ton have been proved.

The Colonial Development Corporation has completed a diamond drilling program in the Southern Province in the course of which they proved 54,000,000 tons of good quality coal with another 35,000,000 tons probable. The Corporation is now considering plans for further

development of the coal in conjunction with important deposits of iron ore which are stated to exist in the vicinity. An extension of the Southern Province Railway will also be necessary before production can begin. The whole project may be regarded as a long term one with considerable industrial potentialities.

Gold production for 1952 showed little change as compared with 1951. There were few fresh developments in the industry and practically no prospecting for new deposits was carried out.

During the year permission was given to producers to sell the whole of their output on the open market instead of only 40 percent as previously. The free market price of gold declined slowly but steadily during the year and, on balance, the net price realized per ounce of gold did not show much increase.

Tin production again declined in quality. A number of small-workers interests have been amalgamated under the con-

trol of the Colonial Development Corporation and this concern is concentrating on exploration and development rather than on production.

Wolframite production also remained on a small scale, in spite of the high price which this mineral commands. Deposits so far discovered seem to be small and situated in remote parts of the Territory with poor transport facilities.

Considerable interest was shown in prospecting by important mining groups. The Union Corporation Ltd., is continuing the exploration of its areas adjacent to Uruwira Minerals Ltd., and is reported to have found one base metal deposit of importance.

The 1952 mineral production of Tanganyika was a record, mainly due to the sale of more than two years' production from Williamson's diamonds. In other directions as well, however, steady progress is being made and mineral production should continue to increase over the next few years.

## UGANDA

Area—93,981 square miles

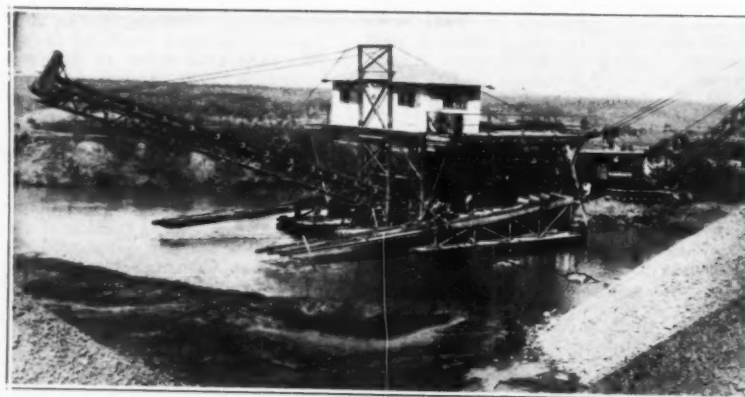
Currency Unit—Pound

Value—\$2.80

Chief Mineral Products—Tin, tungsten, columbite, gold.

Wolframite continues to be the mineral export of greatest value although production measured in terms of weight has fallen somewhat as compared with 1951. Production is mainly in the hands of small-workers who use primitive methods. In view of the great impor-

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**Uganda Mineral Exports and Value in 1950, 1951, and 1952<sup>1</sup>**

Commodity	1950		1951		1952	
	Quantity	£ Value	Quantity	£ Value	Quantity	£ Value
Diamon <sup>2</sup>	3.7	1,641	1.82	941	3.58	£3,178
Columbite <sup>3</sup>	5.09	1,154	19.16	16,863	4.06	4,788
Lead <sup>3</sup>	42.82	4,708	8.46	1,131	2.00	225
Tin <sup>3</sup>	191.74	107,900	118.72	116,335	154.37	107,188
Tungsten <sup>3</sup> (Conc)	198.79	72,180	144.17	163,514	131.81	220,299
Gold <sup>3</sup>	384.62	6,886	223.49	2,644	181.20	2,374

1. Estimated. 2. Long tons. 3. Fine ounces.

tance of tungsten in armament programs the Uganda government is urging producers to improve their methods and introduce mechanization. Following this policy, at one property, a mill consisting of crushers, jigs, and tables started operation. It is too early yet to state its capacity but treatment should be at the rate of 50 to 100 tons per day.

Production of Columbite declined, but recent substantial price increases have created renewed interest in prospecting and re-opening abandoned columbite and tantalite workings. Microlite, in apparently workable quantities, was discovered during the year, in association with columbite.

A new development of importance was the investigation of the pyrochlore-apatite-magnetite bearing soils of Sukulu near the Kenya-Uganda border. Pyrochlore is a niobate of the cerium minerals. A new company, the Tororo Exploration Co. Ltd. comprising the important companies: Rio Tinto Ltd., Frobisher Ltd., Monsanto Chemicals Ltd., and Uganda Development Corporation was formed to investigate the deposits.

Development continued at the copper-cobalt ore bodies at Kilembe where a plant with an initial milling rate of 3,400 tons of ore a day is being erected. Construction of the first step of the western extension of the railway as far as Mitanya has started, and the coming into production of this project will ensure a big increase in Uganda mineral production. The decision to extend the railway as far as Lake George in order to serve the Kilembe deposit is creating increased interest in the mineralized areas on the west and southwest part of Uganda.

## UNION OF SOUTH AFRICA

Area—472,550 square miles  
Currency Unit—South African Pound  
Value—\$2.80

Chief Mineral Products—Diamonds, gold, manganese, platinum, chrome, copper, uranium.

In 1952, increases in the production of the Union of South Africa's metals and minerals dominated this report. In many cases, the increases were marked; in others, welcomed because of the strained electric power supplies and transport system.

Among the increases can be mentioned that of gold, the output of which rose to 11,818,681 fine ounces from the 1951 output of 11,516,450 ounces; diamonds the production of which reached 2,383,211.4 metric carats, compared to 2,228,911 in the previous year; and the platinum group metals which improved to 232,521 ounces from the 1951 production figure of 190,898. An interesting development relating to the latter was the decision to erect a refinery to treat a portion of the platinum group metal output.

With more operators in the field, the

output of tin concentrates and the sales of metallic tin were increased. Concentrate output mounted to 1,591 tons (65 to 67.5 percent) from the previous figure of 1,271 tons. On the other hand, the output of antimony concentrates reflected the reported weakness in demand for the metal, and was very considerably lower at 12,958 tons compared to 28,211 tons in 1951. In both cases, production is confined to the Transvaal.

Notwithstanding the rail transport limitations, in so far as it would adversely affect sales and therefore production, output of manganese and chrome ore was more than maintained: that of the former rising to 964,127 from 836,515 tons; and that of the latter to 639,370 from 600,767 tons. As is known, the Union's manganese deposits are in the Northwestern Cape; while the chrome ore occurs in the Bushveld Complex of the Transvaal.

The output of iron ore indicated in the main the increased requirements of the ISCOR furnaces at Pretoria and Vanderbijl. Relatively small tonnages of iron ore are mined from the Postmasburg deposits of the Northwestern Cape and from deposits in Natal, but the greater bulk by far of the Union's iron ore out-

put comes from ISCOR's Thabazimbi deposit in the Rustenburg district of the Transvaal. The Thabazimbi output will be supplemented during 1953 by ore mined from the highgrade deposits at Sishen in the Kuruman district of the Northwestern Cape. Total output of iron ore in 1952 amounted to 1,938,857 tons compared to 1,566,546 in 1951.

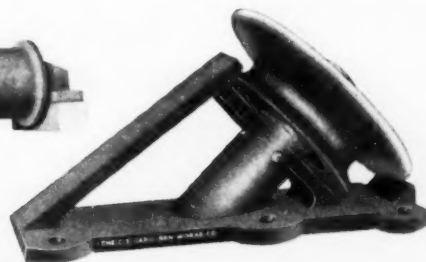
Asbestos output in the Transvaal and Cape Provinces was advanced to 133,839 tons compared with 107,368 tons in 1951. All three grades of Transvaal production—amosite, chrysotile and blue—as well as Cape blue, reflected increases. Among the minor changes was that of copper output by the O'okiep Copper Company and Transvaal (Messina) Development Co., Ltd.'s operators. The combined output moved up to 38,705 tons in 1952 from the 1951 level of 37,182 tons.

The total value of the Union's sales of metals and minerals in 1952 was £218,079,800, including the gold premium of £3,699,124. A feature of the 1952 was the improved utilization of mined products by South Africa industry. Excluding the products of the gold mining industry—gold, silver and osmium—as well as diamonds and the platinum group metals, domestic industry absorbed mined products to the value of nearly £20,000,000; excluding the same items, but including the platinum group metals. The rail movement of manganese ore towards the end of 1952 improved. This improvement seems likely to be continued, and will be broadened in due course to include chrome ore. This will benefit the export trade in these commodities. Apart from the restrictions on exports through the strained rail trans-



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# Metal and Mineral Production and Value for the Union of South Africa for 1950, 1951, and 1952\*

Commodity	1950		1951		1952	
	Quantity	£ Value	Quantity	£ Value	Quantity	£ Value
Gold <sup>2</sup>	11,663,713	£144,775,837	11,516,450	142,947,935	11,818,681	146,699,377
Diamonds <sup>3</sup>	1,925,526	14,388,706	2,163,170	16,344,937	2,383,211	14,776,482
Silver <sup>2</sup>	1,119,135	302,115	1,162,588	377,107	1,176,433	364,398
Osmiridium <sup>2</sup>	6,357	163,943	6,883	243,478	6,141	250,959
Copper <sup>1</sup>	38,811	5,651,082	38,533	8,420,316	38,705	11,608,000
Tin <sup>1</sup>	645	412,574	808	837,129	1,591	868,000
Antimony <sup>1</sup>	13,512	788,697	24,176	3,064,814	12,958	1,273,000
Beryl <sup>1</sup>	905	77,460	897	93,826	413	42,560
Bismuth ore <sup>1</sup>	16	6,794	0	3,127	3	—
Chromite ore <sup>1</sup>	536,215	1,408,350	564,017	1,586,094	639,370	1,669,459
Iron ore <sup>1</sup>	1,318,326	656,433	1,560,277	843,048	1,938,857	1,040,152
Lead ore <sup>1</sup>	776	42,528	919	73,743	866	48,000
Manganese ore <sup>1</sup>	831,145	3,292,493	704,133	3,175,099	964,127	3,800,000
Tungsten ore <sup>1</sup>	236	62,034	203	177,548	271	236,828
Andalusite <sup>1</sup>	8,320	9,415	12,530	25,866	21,477	79,000
Asbestos <sup>1</sup>	76,170	3,623,589	101,229	5,448,548	133,839	7,600,000
Barite <sup>1</sup>	2,500	8,477	2,157	7,434	1,894	6,678
Corundum <sup>1</sup>	3,529	73,602	5,030	94,701	4,179	96,000
Fluorspar <sup>1</sup>	6,980	22,314	12,056	55,876	11,343	60,000
Graphite <sup>1</sup>	218	1,619	252	2,189	389	2,777
Kaolin <sup>1</sup>	7,163	18,996	10,140	23,997	8,244	19,697
Magnesite <sup>1</sup>	12,767	28,137	17,846	37,815	26,906	39,023
Mica <sup>1</sup>	1,486	10,239	1,208	9,983	2,941	16,500
Talc <sup>1</sup>	4,531	12,352	4,752	12,912	9,562	23,218
Vermiculite <sup>1</sup>	31,497	171,533	24,324	131,908	39,918	191,000

\* Records of the Government Mining Engineer. Some value figures are preliminary for 1952.  
1. Short tons. 2. Fine ounces. 3. Metric carats.

port system, which is not a factor of policy, there were no indications whatsoever of any official or Governmental embargo on metal or mineral exports. Regarding manganese ore in particular, it is not expected that the State will interfere with the present position for the next decade, and for probably a much longer period in respect of chrome ore. The limited availability of adequate electric power was one of the most pressing problems of the gold mining in-

dustry during 1952. In the light of the demand for additional power for the uranium program, the shortage assumes strategic importance. It has been a matter of considerable concern to the mine managers.

The highlight of the Union's mining activities during 1952 was the start of uranium production at the West Rand Consolidated Mines Ltd. in September and the official opening by the Prime Minister—Dr. Malan—early in October.

Cost of construction of uranium plants is likely to exceed £40,000,000 and the annual gross revenue when in full production is not likely to be much less than £30,000,000. From September to 31st December, 1952, the West Rand Consolidated Mines made a net profit (subject to adjustments) of £124,767 from uranium sales. By the end of 1952, the list of gold mines designated as uranium producers had been increased to 15. Of these, eight are in the Transvaal: Daggafontein, Vogelstruisbult, Luipardsvlei, West Rand Consolidated, Randfontein, Blyvooruitzicht, Stilfontein, Western Reefs. Daggafontein and Western Reefs at year's end were on the verge of uranium production, which the remaining seven are in the Free State: Virginia, Harmony, President Brand, President Steyn, Welkom, Western Holdings, and Free State Geduld.

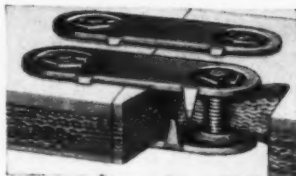
During 1952, two gold mines were formed to exploit the Lucas Block immediately south of the Stilfontein mine in the Klerksdorp district. They are the Hartebeestfontein and Buffelsfontein mines. In the course of 1952, the Stilfontein mine reached the production stage, as did West Driefontein further east. The Doornfontein mine, immediately west of Blyvooruitzicht, advanced further towards the production stage, which will be reached in 1953. In the Orange Free State, St. Helena and Welkom completed their first full year of production with a combined output valued at £2,798,125. In the case of Western Holdings, President Steyn, Fredries North and Fredries South, development was advanced to the point of making possible the start of production in 1953.

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# PRODUCTION EQUIPMENT PREVIEW

PEP is just what new equipment, increased mechanization, and new methods can give to your mine, mill, or smelter. This PEP section is MINING WORLD'S way of making available to you some of the finest current information on mechanization.

## EQUIPMENT HIGHLIGHTS FOR THE YEAR AHEAD

**BIGGER PAYLOADS:** Double-trailer or truck-trailer combinations with overall capacities up to 45 tons or more are possible with the bodies and trailers built by Easton Car and Construction Company. The versatility of these units make them adaptable to nearly any haul job. Circle no. 3.

**NEW METAL MINING MUCKER:** The Whaley automatic loader, long famous for its rugged ability in fast rock-loading in coal mines, has now been mounted on crawlers for use in metal mines where fast, low-clearance loading means greater production at reduced cost. Circle no. 9.

**FREE THE BIN:** Hung chutes and stuck bins are the continuing plague of the mine or mill operator. The Cleveland Vibrator Company has a size and type of vibrator to fit any mining problem. So write for their free literature on the subject by circling no. 10.

**DIAMOND BIT CATALOG:** Wheel Trueing Tool Company offers an informative catalog on its diamond bits, explaining the cutting power they develop to cut through any formation swiftly, accurately, thrifly, dependably. Circle no. 18.

**TRUCK "PREVENTIVE MAINTENANCE KIT":** A complete maintenance control kit with Inspection and Control forms is available free of charge to owners of Euclid trucks. Paper work involved in the matter of maintenance control has been reduced by this scientific system to a matter of a few minutes daily. For further information circle no. 28.

**TESTING LABORATORY SERVICE:** Of interest to executives and metallurgical people is a new 12-page bulletin issued by Denver Equipment Co. covering the company's ore testing and laboratory services, with flow-sheets for many ores, machines recommended for each stage of the process and other data. To obtain Bulletin No. G3-B39 circle no. 29.

**TORQUE CONVERTER INTEGRATED WITH GM DIESEL:** The inside story of the General Motors Torque Converter, now an integral part of a number of GM Diesel engine models has been published by Detroit Diesel. Operating principles of the unit providing smoother power flow and engine protection are subject of the new bulletin, which may be obtained by circling no. 30.

**MINING TOOL CATALOG:** A new publication No. M-7 containing applica-

tion data, specifications and prices on all Kennametal carbide-tipped mining tools, including cutter and drill bits for blast holes and roof bolting, rock bits, open pit bits, augers, adapters, drive sockets and roof pinning rods, may be obtained by circling no. 33.

**PRECISION MAGNETOMETER REDUCES SURVEY TIME:** The new Arvela Magnetometer, distributed in the Western Hemisphere exclusively by the E. J. Longyear Co. of Minneapolis, has a reading range of 4000 to 20,000 gamma with respective scale values from 10 to 50 gamma. The scale value can be readily adjusted in the field. The unit is described in a new Longyear bulletin No. 86 which also covers the company's new Straitline Core Drills. To obtain circle no. 31.

**MORE SCREEN AREA PER SQ. INCH:** Hendrick Mfg. Company's uniquely designed Wedge-Slot screen nearly doubles the efficiency of a given area of mesh. Stainless steel bars with a V-shaped profile can be used in smaller sizes than conventional bars—therefore, more apertures of a given size per square inch. For more information, circle No. 213.

**BLASTERS HANDBOOK MEANS BETTER BLASTING:** This new and completely revised handbook will save you money on all types of blasting at every job. See for yourself how the industry does it, reference charts and tables add to its usefulness. Contains the latest approved safety measures. A copy may be obtained for \$1.75 from DuPont Powder Company, Explosives Department 2539-D, Wilmington 98, Delaware, or send \$1.75 to *Mining World*.

**RIGHT-ANGLE SLUSHING:** Pacific's Round-the-Corner sheave block is lowering costs and increasing production in mines all over the world. Since it is still new, its uses may not be familiar to you. For complete information, circle No. 162.

**HIGHER GYRATORY OUTPUT WITH LOWER POWER:** Traylor TC crushers have exclusive self-tightening bell heads and curved concaves for maximum power efficiency. Get Traylor bulletin 126 describing all seven sizes of TC crushers from 20- to 60-inch feed openings by writing the Taylor Engineering & Mfg. Co., 523 Mill St., Allentown, Pa. Or circle no. 49.

**Numbers for circling should be filled in on post-card in this section.**

**HI SLUSHER CAPACITY IN TIGHT PLACES:** Where space—especially laterally—is at a premium, tandem hoists like Vulcan-Denver's new units will give the maximum power and efficiency of large single-shaft slusher hoists and yet provide space for easy repair and maintenance. Circle No. 219.

**EQUIPMENT FOR THE MINING INDUSTRY:** That's the title of a new catalog published by Traylor—a name that for 50 years has mean dependability to the miner. To get a copy, write Traylor Engineering & Mfg. Co., 553 Mill St., Allentown, Pa. or circle no. 51.

**TWO-WAY SQUEEZE ON CRUSHING COSTS:** Traylor Engineering & Mfg. Co. says Traylor's jaw crushers, with their curved jaw plates, not only put the squeeze on costs but give greater capacities even with finer settings and outlast conventional crushers three to one. To investigate further, get the company's jaw crusher bulletin by writing them at 543 Mill St., Allentown, Pa. Or simply circle no. 52.

**STRIPPING THE EARTH:** That's the title of a new booklet published especially for mining men by the Caterpillar Tractor Company. In it are illustrated the many mining uses to which Cat equipment is applicable. For your copy, circle no. 81.

**MAN THE PUMPS:** To be certain that your pumps are at all times in operating order, get the illustrated, 30-page "Pump Maintenance" issued by Allis-Chalmers. Circle no. 2. A second book in this same series—also Allis-Chalmers—is titled "How and Why of Centrifugal Pumps" and is dedicated to the proposition that in order to use a pump properly, you've got to be smarter than the pump. This book can be had by circling no. 82.

**NEW HI-CAPACITY PIT SHOVEL:** Marion Power Shovel Company's new 191-M was especially designed and engineered for faster loading cycles in open-pit iron and copper mines where maximum per-shovel production means lower costs and higher efficiency. Circle No. 215.

**DEPENDABILITY IN THE GRINDING CIRCUIT:** The ball mills made by F. L. Smidth & Company for wet or dry, open or closed circuit grinding are backed by nearly 60 years of experience in the manufacture of grinding equipment. For details on Smidth units, circle No. 216.

**ATTENTION MILLMEN:** Denver Equipment Company is so confident that the

new "Sub-A" Super Rougher flotation machine will lower your tailings losses that they will send you one of the machines to try out in your circuit. If you're not satisfied, just return it without obligation. What more can you ask? If your answer is more information, no. 84.

**DIESEL ENGINE INFO:** Twelve two-page specification sheets have been released by Nordberg describing the one, two, and three-cylinder Nordberg Diesels. These specs include data on optional equipment such as generators and the like. For a full set of the twelve sheets, no. 85.

**BASIC MILL UNITS:** A 16-page booklet published by Pioneer Engineering Works covers the purpose, features, and specifications of Pioneer crushers, feeders, conveyors, vibrating screens, revolving screens, scrubbers, dehydrators, bins and related units that make up crushing, screening, and washing plants. Included are several pages on primary sections—jaw crusher, apron or grizzly feeder, and power unit all mounted on a common set of skids. no. 87.

**BIG POWER WITH DIESELS:** National Supply Company's models 60 and 80 engines range in power from 410 to 1,440 hp. They're designed for standard or super charged, and straight or dual-fuel applications where stationary power is needed. Get bulletin #5201—circle no. 88.

**CUT TIMBERING TIME:** The time involved in underground framing—or, for that matter, wherever timber or wood must be cut—can be drastically reduced with Wright power saws. They weigh but 14 pounds and have reciprocating straight blades for fast, fatigue-free operation. Learn the advantages in time and money that these saws afford by circling no. 89.

**PUMP BOOK FOR YOUR FILES:** Ingersoll-Rand's bulletin on general purpose centrifugal pumps of the cradle-mounted type covers 5 basic groups and 17 corresponding pump types with full engineering and operating data. Get a copy by circling no. 90.

**KNOW THE PRINCIPLES BEHIND MATERIALS DRYING?** If not, send now for the book offered by Link-Belt. It's designed to illustrate simply and clearly the underlying theories of heat drying bulk materials. A psychometric chart and air and vapor tables are included. Circle no. 91.

**SIMPLIFY YOUR HOSE INVENTORIES:** Not only has the Thermoid Company reduced their line of molded rubber hose from 18 different types to five basic types, but they've increased the versatility of application. All types are now color-coded for easy identification and offer improved performance through the use of new components. For further details, circle no. 92.

**POCKET BOOKS FOR ROPE MEN:** Two new handbooks for rope men have been published by A. Leschen and Sons Rope Company. The first, book C-51, is titled "Use and Care of Wire Rope" and has 72 illustrated pages covering applications, methods of handling, and engineering data—circle no. 18. The second pocket book, "Wire Rope Handbook R-51," covers the specifications of available types of rope for industrial use. To get the handbook, circle no. 93.

**FOR BETTER MECHANIZED MINING:** A new book published by Allis-

Chalmers is devoted to the many uses to which A-C equipment has been profitably put in both surface and underground mines. The illustrations and text cover tractors, loaders, graders, bulldozers, winches, etc. To get a copy no. 94.

**NEED A SMALL SELF-CONTAINED BLOWER?** The Jeffrey Aerodyne midge fan will produce 6,200 cubic feet per minute of free delivery air or 5,000 cfm through 2800 feet of 24-inch pipe yet is less than 40 inches in length. Jeffrey's data leaflet on this unit will be sent to those circling no. 95.

**AUGERS FOR FASTER DRILLING:** McCarthy vertical and horizontal auger drills have increased pit production for many operators. Get information on the advantages these units offer in blast hole drilling and subsoil testing by circling no. 96.

**LONGER LIFE FOR MINE CABLES:** Electric cables underground require the best possible insulation to stand up under the rough usage they get. Simplex cables with Anhydrex XX insulation have been successfully subjected to tests other materials failed to pass. To insure long cable life and better mine safety get further details on Anhydrex by circling no. 97.

**SAVE YOUR CONVEYOR BELTS:** Two inexpensive but valuable gadgets made by Stephens-Adamson for saving wear and tear on belt installations are described in the S-A bulletin 651. The first is a spring-type, multiple-blade belt cleaner that is easily installed and has no moving parts. The second item is an instant-acting holdback. It works like a hill-holder—stops the belt smoothly and without shock or backward motion, and automatically releases when power is again applied. Circle no. 98.

**REDUCE TRACK MAINTENANCE:** Track spillage means lost production and expensive maintenance when mucked by hand. Get American Mine Door's 8-page data book on the new Canton track cleaner—this unit automatically cleans both inside and outside the rails and loads the muck in a single operation. Circle no. 99.

**THE NEWEST IN SANDS PUMPS:** Galigher is now producing a newly designed pump for handling sands and acids in mines and mills. It features protective gland seal and is available in a variety of sizes and capacities. For a bulletin on these pumps, circle no. 100.

**WANT A CONVERT A TORQUE?** Three new bulletins describe Allison torquematic converters. They come in three series—400, 600, and 900—for applications in any type of power transmission whether it is off-highway trucks and shovels, crawler tractors, rail use or what have you. For all three of these booklets, circle no. 101.

**CONTROL THOSE DUST PROBLEMS:** American Wheelabrator & Equipment Company publishes a periodical on dust and fume control called "Dust and Fume Topics." If you want to get on their mailing list, circle no. 30. For a little background on just how Wheelabrator's Dust-tube collectors are made, applied, and how they work, get the company's publication devoted to mining and metallurgical applications by circling no. 102.

**FLUID-COUPLED SHOVELS:** A new line of smaller mining and construction

shovels is making operating news by their faster, smoother and couplings. They're made by Gar Wood who's published a booklet on best truck and crawler-mounted models. Circle no. 103.

**HARD-FACING GUIDELINE:** This is the recently revised guideline originally published by the Stoodly Company some years ago. It's a must for any maintenance library now that rebuilding and hard-facing are standard procedures throughout mining and milling. Circle no. 104.

**SHOCKING!** Where heavy loads are suddenly introduced or removed from operating equipment the resultant shocks can cause tremendous maintenance costs. Dodge Torque-Arm speed reducers and overload releases protect valuable conveyors, motors, v-belts and other transmission devices. To receive Dodge's engineering bulletin A-614-A that has all the necessary details, no. 105.

**PUMP SELECTOR:** A new bulletin, "Nagle Pumps Selector," is published by Nagle Pumps, Inc. to guide you in the proper selection of the company's pumps for even the most abusive uses. Circle no. 106.

**LIGHT-WEIGHT PIPE FOR MINING:** A new bulletin has been released showing typical applications of Naylor Lockseam Spiralweld pipe in the mining, construction, oil and related industries. For a copy circle no. 107.

**CHAMPION OF CRAWLERS:** The International TD-24 with its 124 drawbar horsepower is ideally suited for mining and construction work. Colored machine views, action shots, engine views, and specifications are shown in the new information catalog. PEP no. 108.

**AIR-COOLED RADIAL COMPRESSORS:** Capable of producing 80 to 125-pounds pressure are described in the new Worthington bulletin, PEP no. 53. Pictured and explained are articulated connecting rod, fan cooling of isolated cylinders, forced feed lubrication, and feather valve. Dimensions and weights, capacities, size and cross-section photographs are available for these compressors. Circle no. 109.

**ONE-MAN RIG WITH DRIFTER POWER:** Consolidated Pneumatic's new CP-59 rock drill with 2 1/4-inch piston feedleg offers a combination long sought by mining men—a light-weight, one-man drill with the power and punch of a regular drifter. Get full details by circling no. 110.

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**COMPLETE DIAMOND DRILL SERVICE:** The design and manufacture of Sprague and Henwood's diamond bits, reamers, barrels, and drills are backed by years of world-wide experience in actual diamond drilling operations. Their bulletin 325 covers briefly the equipment and many services they now offer. Circle no. 112.



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**BIGGER CHURN DRILL:** Bucyrus Erie now makes a big churn drill, the 50 I, that drills 9- to 12-inch holes and will handle a tool string up to 6,000 pounds. All this adds up to faster drilling and greater depth for the churn driller. Circle no. 135.

**HANDLE THICK SLURRIES?** If you do, and especially if the slurry is high gravity, find out how Morris Type R slurry pumps can give you longer operating life with little or no maintenance. Get Morris bulletin 181 by circling no. 136.

**LUBRIPLATE SOLVES PROBLEMS:** According to the Stephens-Adamson Manufacturing Company, there has not been a single case of conveyor roller failure due to faulty lubrication where Fiske Brothers Refining Company's Lubriplate has been used. To find out more, get the new 56-page treatise on lubrication published by Fiske. Circle no. 137.

**100 PENNIES MAKE A DOLLAR:** And little repeating costs add up to a lot of expense. Take cheek plates, for instance. First cost isn't great but continual replacement means lost time and money. With Resisto-Loy's N. M. Mangatone, cheek plates can be surfaced to give longer life and lower costs. Circle no. 138.

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**CRANE POWER:** The Cummins-powered crawler-mounted Manitowoc Speedcrane is a high-speed, heavy-duty crane designed for fast service in lifting and moving. For further details on this and other applications of Cummins Diesel power, in construction and mining, circle no. 140.

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**EASIER PIPING:** The United States Rubber Company has a brochure available that explains in detail the applications, design, installation, and use of the new Uscolite plastic pipe and fittings. Get a copy by circling no. 144.

**HELICAL GEARS AND HOW THEY WORK:** Helical gear drives—their advantages, fields of application, and correct selection—are discussed in a 16-page book just released by the Link-Belt Company. Circle no. 145.

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**SMALL POWER SHOVELS:** Link-Belt Speeder Corporation just published a new catalog on their latest Series 51 (1/2-yard) shovel-crane. These crawler-mounted units are quickly converted to draglines, clamshells, trench hoes, or pile drivers. To get a copy of Series 51 catalog, circle no. 147.

**TACONITE PELLETS HARDENED:** Though tests have not yet been completed, an interim report on Allis-Chalmers' work on the heat hardening of taconite pellets from the Babbitt plant of the Reserve Mining Company was given at the AIME in January. If you'd care to get the full information on this development when it becomes available, circle no. 148.

**IMPROVED GYRATORY:** Kennedy-Van Saun's new high-torque, non-

clogging gyratory will efficiently handle tough rock with as much as 50 percent clay. Get the full information on this new development by circling no. 149.

**DIAMOND DRILL BULLETIN:** E. J. Longyear Company has a new general bulletin 86 featuring diamond core drills and the new Arvela precision magnetometer. To get a copy, circle no. 150.

**AIR VALVES:** Ledeen Manufacturing Company has issued a bulletin describing and illustrating the complete line of Ledeen valves for operating air and hydraulic cylinders and air motors. Get a copy by circling no. 151.

**SHOVEL MANUAL:** A 32-page book published by the Koehring Company is a truly valuable and complete guide to the "Use and Application of Power Cranes and Shovels." From basic principles to detailed cost records, it covers every phase of crane and shovel use. For a free copy, circle no. 152.

**EAGER DRIFTER:** That's what Gardner Denver calls their 3 1/2-inch 93. It's a new machine for which is claimed the power and performance of the usual 4-inch drifter. Bulletin DD-2 gives complete specifications. Circle no. 153.

**PORTABLE COMPACT pH CONTROL:** New savings, new speed and production advantages are provided by the new completely portable Beckman Model N pH meter. The instrument incorporates a built-in ruggedness that adapts it for use anywhere without depending on outside power circuits. For information circle no. 154.

**HI-POWER SCINTILLOMETER:** The scintillometer made by the Engineers Syndicate, Inc. detects nearly 100 percent of gamma ray emission—one hundred times as sensitive as the Geiger counter. For complete information, circle No. 155.

**NARROW GAUGE DIESEL SWITCHER:** Baldwin-Lima-Hamilton Corporation is building a new Diesel locomotive in gauges from 30 to 66 inches for plant switching service. The new unit weighs 35 tons, has a starting tractive effort of 17,500 pounds. Speeds are 10.6 and 28.0 miles per hour. No. 156.

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**PLACER AND SOIL SAMPLING:** The Acker Drill Company's 16-page bulletin no. 25 illustrates and describes a wide variety of equipment for use in placer and soil sampling. Included are solid-tube, split-tube, and thin-wall samplers; spiral augers; interchangeable shoes; trap valves; and even the minor items you'll need for your sampling kit. Circle No. 159.

**TRUCO BITS ASSURE HIGH FOOT-AGE:** The carefully set diamonds in the bits made by the Wheel Trueing Tool Company deliver maximum cutting power for increased footage. For further information, circle No. 160.

**IMPROVED BATTERY LOCOMOTIVES:** Double-reduction spur gear drives and anti-friction bearings are only two of the features that provide efficient underground haulage with Atlas storage battery locomotives. For complete information on the application of Atlas products as described in their catalog by circling No. 161.

**DUST CONTROL BROCHURE:** Dust and fume control is the subject of a comprehensive brochure just published by American Wheelabrator & Equipment Corporation. This booklet tells how cloth-tube-type dust collectors are handling complex problems in 33 typical installations. For your copy, circle No. 163.

**HOW TO SELECT A CRUSHER:** To aid in choosing the crusher most perfectly suited to each need, the Pennsylvania Crusher Company has published a new booklet describing the difference in fundamental crushing methods and the machines used in each. Circle No. 164.

**ROTOCURED BELTS LAST LONGER:** Boston Woven Hose and Rubber Company's Rotocured flat transmission belts operate at lower tension and last longer. They give added belt life, eliminate mechanical distortion, have a constant uniform stretch, and have abrasion resistant covers. Circle PEP No. 165.

**NOISELESS FREE FLOW WITH SYNTRON:** The Syntron Company now manufactures a complete line of semi-noiseless electric vibrators for use close to workers where noise is a major factor. For a descriptive folder on these vibrators for bins, hoppers, and chutes, circle No. 166.

**TIREX SHUTTLE CAR CABLE FOR RUGGED CONDITIONS:** The geared design of Simplex-Tirex shuttle car cable

gives longer life under more rugged conditions and will haul more tons of coal per dollar of cable cost. PEP No. 167.

**RATCHET HOIST LIFTS 3,000 POUNDS.** The new Coffing, hand-operated, ratchet hoist lifts up to 3,000 pounds. The load is suspended on a ratchet pawl at all times, cannot slip, nor will the holding mechanism freeze. The handle operates with partial or full strokes. Safety stops prevent spinning of the handle. For further information, circle PEP No. 168.

**INCREASE BELT STRENGTH:** To aid in making dust-tight, water-tight joints in belts, Armstrong-Bray has introduced a plate fastener for conveyor belts. This Plategrip spreads tension evenly across the belt, allows natural troughing, and assures smooth operation over flat, crowned or take-up pulleys. Plategrip comes for sizes of belts from 1/4 inch to 1 1/2 inch thickness. For further information, circle No. 169.

**BOYLES BROTHERS BLASTHOLE DRILLS** are finding extensive use for both diamond core and blasthole applications. For data on the new four-speed swivelhead drill, BBU "JV," which is recognized as the world's most powerful underground diamond drill of its size, circle No. 170.

**HI-SPEED SURVEYING:** Abrams Aerial Survey Corporation's newest publication explains the advantages and methods of modern aerial survey practice. The many ingenious processes used to do accurate mosaics and typographic maps are described in texts, photographs, and drawings. For your copy, circle No. 171.

**NEW MOTORIZED HEAD PULLEY:** Representing a new departure from conventional types of conveyor drives, this new motorized pulley is a fabricated steel drum, normalized to relieve stresses, with self-contained electric motor and reduction gears. The new Schrock unit will find application in mining, milling and crushing operations, where its compactness will reduce space requirements and its simplicity and mobility provides major time and labor economies. For detailed bulletin issued by Yuba Mfg Co., circle No. 172.

**HOW TO HAUL 21 CUBIC YARDS AT 28.2 MPH:** The illustrated catalog of the Euclid Scraper gives complete information of the 275-hp. unit which has a 10-speed transmission and independently actuated hydraulic controls. Learn by circling No. 173.

**KARRY KRANE BOOMS FOR RESTRICTED SPACE.** The Hyster Company is now building a series of special booms with four- to nine-foot overhang for use where operating space is limited. Each boom is available on special order only. For complete information about these special booms, circle No. 174.

**SAFER, FASTER CAR COUPLERS:** Willison automatic couplers require no manual assistance in either coupling or uncoupling—an important factor in mine safety. Either end of a car can be the front with these symmetrical units—no lost time in reversing. Close coupling prevents damaging slack. Circulars nos. 1746 and 5240 have the details. No. 175.

**DESIGN YOUR REDI-FAB BELT CONVEYORS:** The Barber-Greene Company

has a new 40 page catalog which makes it easier for you to figure your own conveyor belt requirements. The selection of the proper conveyor with the correct size of drive and motor is assured. Using the new layout sheet you can make your own layout, accurate in every detail. Select your Redi-Fab conveyor and order the components from Catalog RF. Send for the Redi-Fab catalog by circling No. 176 and design your own conveyors.

**WATER LUBRICATED PUMP SHAFTS** prevent wear in bore hole pumps for mine dewatering. The Johnston Pump Company has a pump for every purpose and features a renewable shaft sleeve in their turbine pumps. If you are pumping liquids, Johnston hydraulic engineers can help you. Circle PEP No. 177.

**HEIL TELESCOPIC HOISTS** give double-acting truck body dumping at 70° angle for fast clean dumping of loads up to 50 tons. The hoist has a built-in snubber to prevent "kickback" or over-dumping with a sticky load. Circle No. 178.

**SCREEN GUARDS:** Wedge-Wire's Kleenslot screen guards protect valuable fine-mesh screen by keeping larger lumps of material from reaching the delicate meshes. Illustrated literature on the newest in non-clogging, non-binding screens can be obtained by circling No. 179.

**FOR THE POWDER METALLURGISTS:** A technical data sheet, "Cyanamid Zinc Stearate U.S.P. As A Lubricant in Powder Metallurgy," has been published by American Cyanamid for instruction in the fabrication of oilless bearings, magnets, and machine parts from powdered metal. Circle No. 180.

**ATTENTION MILLMEN:** Denver Equipment Company is so confident that the new "Sub-A" Super Rougher flotation machine will lower your tailings losses that they will send you one of the machines to try out in your circuit. If you're not satisfied, just return it without obligation. What more can you ask? If your answer is more information, circle No. 181.

**ABRASION CAUSING TROUBLE?** The American Brake Shoe Company has published a 24-page bulletin discussing the problems arising from the abrasive nature of minerals, both gangue and vein. With tables listing the various pertinent properties of both alloys and minerals, this guide will prove invaluable to mill men. Circle No. 182.

**NEW MAGNETIC SEPARATOR:** Dings Magnetic Separator Company is now producing a new cross-belt type EBK unit for the concentration of such slightly magnetic materials as monazite, garnet, hubnerite, ferberite and manganese. Full information on new features, including a new pole nose construction that has doubled separating capacity, is available by circling No. 183.

**LATEST ON LAB EQUIPMENT:** The latest descriptive literature and price lists on Denver Fire Clay's immediately available laboratory crushers and pulverizers will be sent to those circling No. 184.

**BIGGER PAY LOADS:** Landis trailers, designed for on or off-highway use, have all-welded construction to reduce tare weights and increase the pay loads.



For the new trailer bulletin on Landis units, circle No. 185.

**NEED NEW OIL FILTERS?** If you do, check with the Winslow Engineering Company, pioneers of full-flow filtration, by getting the company's new booklet with full information on this filtering method. Circle no. 2.

**HAULAGE SYSTEM ANALYSIS:** You know how important dependable, trouble-free underground haulage can be to overall mine production. Whether or not you're in the market for new equipment, take advantage of Mancha experience and engineering by sending for their free "data record form." When filled out and returned to them, this form will be the basis of advice on your specific operating conditions and problems. Circle no. 128.

**NEED A NEW YORK ALL-PURPOSE AGENT?** Miners outside the U. S. should get further information on this service offered by South American Minerals & Merchandise Corp. The company's large staff of engineers and financial experts will buy your ore, purchase supplies and even engineered items. And they'll save you money in the process. Circle no. 1.

**TRAMP IRON REMOVAL:** Stearns suspended magnets are designed to protect expensive crushers, grinders, pulverizers and other vital equipment by completely removing tramp iron from mill circuits. Stearns also has available all necessary laboratory and testing facilities for separation tests on your materials. For further information and their descriptive literature on magnets, circle No. 187.

**PULP PUMP:** The new Wilfley Model K rubber-lined centrifugal pump has been specifically designed for the rugged, heavy duty required by mill circuits and is available in a variety of sizes to meet every pumping requirement. For full details, circle No. 188.

**ROASTERS, CALCINERS:** Pacific multiple hearth furnaces are available in sizes that range from a 36" laboratory model to a 22' 3" production unit. Full details on the ability of these furnaces to roast, calcine, and dry a wide variety of ores and non-metallics can be obtained by circling No. 189.

**NEW TUBE MILL CATALOG:** Hardinge Bulletin No. 18-B describes complete line of tube mills for grinding and pulverizing, including application and construction of the Hardinge pebble tube mill and the Hardinge ball tube mill. Circle No. 190.

**SINGLE USE BITS:** For information on low-cost, time-tested, single-use Liddicoat bits, in a variety of sizes that are color coded for size, circle No. 191.

**MINE HOIST COMMUNICATION SYSTEM:** A new frequency-modulated carrier communication system for mine hoists has been announced by Mine Safety Appliances of Pittsburgh. Called the Hoistphone, the new unit is designed to maintain two-way conversation between the hoisting engineer and the cage. System operates at any level or when cage is in motion. For further information circle No. 192.

**ATTRITION MACHINE INCREASES RECOVERY:** By effective removing stubborn clays, oxides, and other cementing materials before flotation circuits, Western Machinery Company's new attrition machines are increasing the recoveries realized in many milling operations. Circle No. 194.

**EXPLORATION WITH AERIAL SURVEY:** For complete information on the international services and facilities that have made Aero Service Corporation one of the world's outstanding photogrammetric and magnetometer companies circle No. 195.

**SAFETY TUGGER:** The new Joy DW-11 pistonair hoist is a powerful, versatile single drum unit powered by a 4-cylinder, 4-hp. air motor and has automatic safety brakes. Get bulletin 76-X by circling No. 196.

**LONG-RANGE SCRAPER EXCAVATORS:** New Sauerman Bulletin describes methods for fast haulage by a single operator of large yardages from any point within cable radii, including down into deep pits, up hills or across a wide stockpile. For complete catalog circle No. 197.

**SINTERED BIT MATRICES:** Anton Smit & Company offer a line of diamond bits designed to answer the specific requirements of any drilling problem. The tungsten alloy powdered metal matrices of these bits are available in three hardnesses for abrasive, hard, or soft formations. For full information, circle No. 198.

**DUST RECOVERY:** Buell Engineering Company has a new bulletin on "The Collection and Recovery of Industrial Dusts." The 28-page book has complete information on systems of recovery that will boost plant yield, improve product and process, and eliminate air pollution. For a copy, circle No. 199.

**FILTER FABRICS:** Due to a time-tested combination of virgin wool and synthetic fibers, FumeAll fabrics have the superior filtering characteristics of all-wool cloths and the strength as well as the heat, alkali, acid and moisture-resistance of synthetic materials. For samples and additional details, circle No. 200.

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**CLASSIFICATION COMPARISONS:** The Dorr Company has published Bulletin No. 2500 on Dorrclones to illustrate for practicing engineers how wet cyclones compare with conventional classifiers in various mill circuits and under various classification requirements. Circle No. 202.

**SAND PUMPS:** For complete literature on a line of sand pumps specifically designed for pumping sands and slurries in mines, mills, and smelters, write to Allen Sherman-Hoff Co., 223 S. 15th St., Philadelphia 2, Pa., or circle No. 203.

**WOOD TANKS:** Wood tanks for water, corrosive reagents, and storage of a variety of materials, cooling towers, pipe and ducts, zinc boxes, and other uses are pre-designed and portable. For your copy of

Pacific Wood Tank Corp. catalog 48, No. 204.

**PLACER MINING:** For information on Bodinson Mfg. Co. dragline dredges and dry bank plants for placer operations, see Bodinson's new illustrated catalog of services and equipment by circling No. 205.

**NEW FINES HANDLER:** Equipment Engineers now make three sizes of their new Centriclone—a classifier that combines the best features of a cyclone and a centrifuge. Sharp classification below 65 mesh can be efficiently maintained, and overflow particles can be held below 5 microns in size. Circle No. 206.

**ENGINEERING AND RESEARCH AVAILABLE:** With over 50 years of producing specialized equipment, the Pressed Steel Car Company's Engineering and Research Department will make certain your requirements are met on the most exacting custom jobs in car construction, as well as pipe and conduit rack, hanger, or shelving installations. Circle No. 207.

**GRINDING BALLS WHAT AM:** Sheffield's Moly-Cop grinding balls give longer service, lower grinding costs, fewer chargings, and less down time. They're proven over years of use in many of the world's most successful milling installations. Circle No. 222.

**DIAMOND DRILLING SERVICE:** Boyles Bros. Drilling Company contract for diamond drilling of any type—with no lost time in getting the work underway and no lost motions in completing the job. For full information, circle No. 223.

**CLASSIFICATION PROOF:** If it's proof you want on the efficiency of the Akins classifier, Colorado Iron Works is ready to supply it in the form of actual operating records of these units in classification service of all kinds. To find out more about these operating records, circle No. 224.

**KEEP YOUR DRILLS DRILLING:** Copco Pacific drilling equipment—Coromant steels and Atlas Diesel drills—is backed by one of the best service organizations in the field and some of the best stocked shelves in the business. For further information on Copco, circle No. 225.

**DOUBLE ACTION DUMPING:** Differential Air Dump mine cars dump in either direction—to the right or the left—and provide fast haulage for either waste or ore. The company claims if you haul over 400 or 500 carloads yearly, the savings alone will pay for the car. Circle No. 226.

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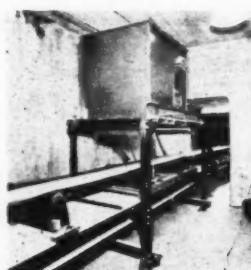
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# FEDERAL MINING AGENCIES

## UNITED STATES GEOLOGICAL SURVEY

The Geological Survey is charged with geological mapping, preparing the National Topographic Atlas, classifying public lands, and determining the Nation's reserves of water, minerals and metals.

### Conservation Division

The Conservation Division's major functions are: (1) to examine and classify the public lands with respect to mineral and water-power resources; and (2) to enforce the mineral leasing laws. Vital supplies of hydrocarbons, phosphates, potassium compounds, sodium compounds, lead, zinc and vanadium are obtained from lands under Federal or Indian lease.

The Mining Branch, one of four Branches of the Conservation Division, is a regulatory and supervisory body responsible for the proper conduct of mine operations, including prospecting, development and production of coal, potassium, phosphate, sodium, silica sand, oil shale, and sulphur on public land leases; of gold, silver, mercury, vanadium, and quartz on various land grants; and of all minerals, except oil and gas, on segregated, restricted, and allotted Indian and acquired land leases. The Branch also enforces the operating and safety regulations under the various mineral leasing acts pertaining to Federal and Indian lands in the United States and Alaska.

At year's end, December 31, 1952, there were 1,137 properties under supervision in 32 states and Alaska, whose yearly output had a value of approximately \$110,000,000. Supervision of the properties is effected through seven regional and district offices. The tonnage of products mined from supervised properties during 1952 is shown in the tabulation below:

Product	Tonnage Mined 1952
Coal	8,074,671
Porash	5,450,479
Phosphate	571,400
Sodium	612,511
Lead and Zinc Ore	1,549,440
Miscellaneous	943,775
Total	17,202,276

### Geologic Division

The Geologic Division is concerned with geologic investigations and appraisals of minerals and mineral fuels in the continental United States, Alaska, Puerto Rico and foreign countries.

In the United States, 95 projects covering 35 metallic and non-metallic mineral commodities in 39 states were in progress in 1951, and well over half of these were focused on strategic minerals. Cooperating with the Defense Minerals Administration, and later with the Defense Minerals Exploration Administration and Defense Materials Procurement Agency, geologic evaluations were made of most of the applications for government aid for exploration and production of and from mineral deposits.

Regional mineral resource studies were in progress in New York and the New England states, Rogue River basin, Oregon and the Arkansas-White-Red River basins in the south central United States as well as resource evaluations of individual mining districts. The geochemical prospecting unit continued its development of new techniques; and rapid tests for arsenic, antimony, tin and selenium were being investigated.

In the field of mineral fuels, geologic mapping and surface and subsurface stratigraphic projects were carried on in 22 states in areas where prospects for discovery of new sources of oil and gas look promising.

In addition, detailed mapping and calculation of reserves of oil shale were also continued in western Colorado and eastern Utah. Important coal- and lignite-bearing areas were mapped in Pennsylvania, Kentucky, Ohio, Indiana, Arkansas, North and South Dakota, Wyoming, Montana, Colorado, Utah, New Mexico, and Washington. Reappraisals of the coal reserves of North and South Dakota, Indiana and Virginia were essentially completed in 1951 and will be published

shortly, and new reappraisal projects were started in Colorado and Oklahoma.

The Alaskan investigations involved coal, petroleum, raw materials for construction purposes, some metal-bearing districts, and one reconnaissance project.

Geologic work in foreign countries is being carried on through the State Department and in cooperation with the foreign governments concerned.

The Geological Survey's geophysical program supplemented the field investigations, and included about 27,000 miles of airborne magnetic and 15,000 of airborne-radioactivity traverse as well as ground magnetic, electrical, geothermal, and seismic investigations. A total of 20,000 miles of aeromagnetic traverse were compiled, 18 aeromagnetic maps published and 16 preliminary maps placed on open file.

Geologic field investigations were assisted by laboratory studies and research in geochemistry, petrology, and paleontology. More than 40,000 samples of rocks were analyzed and studies on physical-chemical processes and the paragenesis of minerals were continued.

## UNITED STATES GEOLOGICAL SURVEY

Department of the Interior, Washington 25, D. C.

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# UNITED STATES BUREAU OF MINES

The Bureau of Mines during 1952 concentrated on research and development to furnish new supplies of minerals for the rapidly-expanding defense program, and planned ahead for future military and economic needs. The Bureau evaluated domestic resources of minerals and fuels, sought new uses for plentiful materials, and increased the efficiency and safety of methods for extracting and processing minerals. During the year added emphasis was placed in collecting and analyzing economic and statistical data on domestic and foreign minerals sources to guide both Government and industry in program-planning.

## Metals and Nonmetallics

Pursuing its top-priority manganese program, the Bureau produced ferromanganese-grade material from low-grade ores at Artillery Peak, Ariz., and successfully completed the first step in moderate-scale experiments on economic recovery of manganese from open-hearth slags. Other experiments promised means of utilizing such vast maniferous deposits of the Cuyuna Range.

Extensive iron-ore projects were

planned to assure adequate supplies for expanding steel production, and the St. Lawrence Seaway proposal was studied further. Research also progressed on recovery of cobalt, nickel, and tungsten.

The Bureau cooperated with the Geological Survey in evaluating DMEA mineral exploration assistance prospects, and participated in Interior's long-range river basin program. Private exploration and mining activities began in areas unwatered by completion of the Leadville, Colo., drainage tunnel early in the year.

Research and development work on other metals advanced a process for extracting zinc from oxidized ores and recovered tin from waste products for the Atomic Energy Commission. The Bureau investigated uranium and thorium deposits, sought improved recovery processes and new uses for hafnium, germanium, gallium, and indium, and reached the final step in a long-range study to produce aluminum from domestic aluminum-silicate deposits. In the high-temperature metals field, the Bureau produced special high-purity titanium sponge for Army Ordnance and increased production of ductile zirconium sponge for AEC. By modifying its zirconium process,

The Bureau increased plant capacity by at least 50 percent.

Among the nonmetallics, sulfur, fluorine, mica, and talc received special attention. Two results of Bureau research were the production for synthetic-mica flake of sheets which promise to replace strategic mica for many uses, and the development of substitutes for block steatite talc.

## Fuels and Explosives

Throughout 1952 the Bureau's fuels studies continued to emphasize coking coal, anthracite, and natural and synthetic petroleum products. Information was published on coking coal reserves in four counties, and reports were being prepared on several other counties at year's end. Cooperative testing in a bituminous-coal mine of a German coal planer, and experiments in adapting such metal mining methods as induced block caving and long-hole drilling to anthracite mining highlighted the Bureau's mining research. At Rockdale, Tex., the first unit of the initial commercial application in this country of the Bureau-developed fluidized process for upgrading low-rank coals to produce char for power generation and chemicals for industrial use was completed.

The eighth year of Bureau of Mines activity under the Synthetic Liquid Fuels Act of 1944 was marked by important technical advances in producing oil from coal and oil shale, and by industry's rapidly growing interest in the Bureau's program. A 200-ton-a-day-combustion retort for oil shale was completed at Rifle, Colo. At Morgantown, W. Va., coal was gasified at pressures up to 450 pounds p.s.i. with greatly increased throughput.

More than 1600 tests were made of permissible and special explosives and hazardous chemicals, and research continued on blasting methods, ignition of firedamp, and the physics and chemistry of detonations.

## Health and Safety

Passage of the new Federal Coal Mine Safety Act in July 1952 increased the Bureau's responsibility for the safety of the Nation's miners. In October 1952, Wyoming joined the Bureau in the first State-Federal plan for inspecting coal mines in accordance with the new law. The Bureau made over 7600 regular coal-mine inspections during 1952, and collected and analyzed over 14,000 samples of mine atmosphere and other gaseous mixtures. Also nearly 8500 samples of mine dust were collected and analyzed to evaluate the adequacy of rock dusting. Throughout the year the Bureau continued its campaign of research, investigation, and training to solve roof-control and haulage problems. More than 2,700 mine officials took the Bureau's coal-accident-prevention course during 1952, and 25,678 persons took the accident-prevention course designed for miners.

## UNITED STATES BUREAU OF MINES

Department of the Interior Washington 25, D. C.

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## Regions and Regional Personnel

<b>REGION I, ALASKA</b> Territory of Alaska Regional Director: Sinclair H. Lorain; Box 560, Federal Building, Juneau, Alaska.	Texas, Missouri except the Coal-to-Oil Demonstration Plant at Louisiana, Missouri Regional Director: Clifford W. Seibel; 814 Barfield Building, Amarillo, Texas. This region also has jurisdiction over the Navajo Helium Plant near Shiprock, New Mexico, and all pipe lines and other facilities connected with or serving those properties.
<b>REGION II, NORTHWESTERN</b> Idaho, Montana, Oregon, Washington Regional Director: Stephen M. Shelton, Box 492, Albany, Oregon.	<b>REGION VII, SOUTHEASTERN</b> Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee. Regional Director: Alton Gabriel, Acting; Hamilton Natl. Bank Bldg., Knoxville 2, Tenn.
<b>REGION III, SOUTHWESTERN</b> California, Nevada Regional Director: Harold C. Miller, 1012 Flood Bldg., 870 Market St., San Francisco 2, California.	<b>REGION VIII, NORTHEASTERN</b> Connecticut, Delaware, Illinois, Indiana, Kentucky, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, and the Coal-to-Oil Demonstration Plant at Louisiana, Missouri. Regional Director: Harold P. Greenwald; 4800 Forbes Street, Pittsburgh 13, Pennsylvania.
<b>REGION IV, ROCKY MOUNTAIN</b> Arizona, Colorado, New Mexico, Utah, Wyoming Regional Director: John H. East, Jr.; 224 New Customhouse, Denver 2, Colorado.	<b>REGION IX, FOREIGN MINERALS</b> Regional Director: Elmer W. Pehrson; Interior Building, Washington 25, D. C.
<b>REGION V, NORTH CENTRAL</b> Iowa, Michigan, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin Regional Director: Paul T. Allaman; 2908 Colfax Avenue South, Minneapolis.	
<b>REGION VI, SOUTH CENTRAL</b> Arkansas, Kansas, Louisiana, Oklahoma,	

# DEFENSE MINERALS EXPLORATION ADMINISTRATION

Federal Aid for the exploration of domestic sources of strategic and critical minerals is provided for in section 303(a)(2) of the Defense Production Act of 1951, as amended. This program is administered by Defense Minerals Exploration Administration, U. S. Department of the Interior.

Defense Minerals Exploration Administration has taken an aggressive attitude in the encouragement of private industry to search for new domestic sources of strategic and critical metals and minerals. It has continuously endeavored to simplify and streamline the administration of the program so as to expedite the processing of applications and disbursement of funds to the Operators. Marked improvement has been made in the time required for these purposes. Under normal circumstances applications are now processed within six weeks from date of receipt of the application and disbursements on vouchers are now being made in less than two weeks from date of their receipt.

Under date of March 7, 1952, DMEA Order-1 was issued to supersede the old Order MO-5 of the Defense Minerals Administration (DMA). A simplified application Form MF-103 was issued during April 1952, and the contract Form MF-200, revised for clarification and strengthening of the Government's position, and a new Short Form MF-200a were issued in February 1952. This latter form permitted entering into contracts on an agreed unit cost basis, when applicable, thus avoiding cost accounting and auditing problems. In addition the Operator's Monthly Report Form MF-104, was revised so as to conform with the new contract forms. This new Operator's Report consists of two sheets, Form MF-104 and Form MF-104a, issued during April 1952.

In April 1952, broader authority was delegated to the Executive Field Officers so as to avoid, insofar as practicable, referrals to Washington and permit decisions to be made in the field, thus, avoiding delays in operation, terminating projects, and disposing of facilities, buildings, fixtures, supplies and equipment in which the Government has an interest.

A Contract and Audit Division was established as an active part of the DMEA organization in January 1952, when a Chief of the Division went on duty. To expedite the responsibility of the Division and for purposes of economy, two auditors were stationed in Denver, two in Spokane, and one in San Francisco. The Chief of the Division and his assistant are staffed in Washington, who, in addition to directing the audit program, distribute their time to making field audits in the Eastern regions.

As heretofore, the Government shares in the cost of the exploration work on a matching basis. The Government will

participate to the extent of 50% of the cost of exploration projects for chromium, copper, fluorspar, cricuble flake graphite, iron ore, lead, molybdenum, sulphur, catalytic grade halloysite, bauxite, zinc and (cadmium); 75% of the cost of projects for antimony, manganese, mercury, tungsten, rutile and brookite; and 90% of the cost of projects for chrysotile and amosite asbestos, beryl, cobalt, columbium-tantalum, corundum, cryolite, industrial diamonds, strategic mica, monazite, uranium, rare earth ores, nickel, platinum group metals, piezo-electric quartz crystals, block steatite talc and tin.

In the event the project is successful in finding ore from which production may result, the Government's share of the cost is repayable from the net returns from any ore, concentrate or metal produced as the result of the exploration project within 10 years from the date of the contract.

Applications for exploration aid must relate to a single project, which must be completed within two years, except in special cases when a longer period is specifically provided for in the contract.

Potential projects are investigated by Field Teams, composed of Engineers and Geologists from the Geological Survey and Bureau of Mines, before final action is taken by DMEA. During the year 1952 a total of 534 applications for exploration projects were received, bringing the total number received during the life of the program to 1646. During the year 1952, 239 contracts valued at \$9,350,117 were executed. The Government's participation in these contracts totalled \$5,771,707. During the year amendments to contracts were executed which increased the cost of projects by \$735,903 and the Government's share of the cost by \$405,040. The total value of 436 contracts executed as of December 31, 1952 is \$21,026,055, and the Government's share of the cost in these contracts is \$12,683,079. Denials and withdrawals during the year accounted for 553 applications, making a total of 990 as of December 31, 1952. At the close of the year 220 applications were in various stages of process. To date contracts have been executed for exploration of 24 commodities and in 32 states and Alaska.

## DEFENSE MINERALS EXPLORATION ADMINISTRATION

Department of the Interior, Washington 25, D. C.

ADMINISTRATOR .....	C. O. Mittendorf	CHIEF, RARE AND MISCELLANEOUS METALS DIVISION ....	Ernest Wm. Ellis
DEPUTY ADMINISTRATOR .....	Frank E. Johnson	CHIEF, NON-METALLIC MINERALS DIVISION .....	Lawrence G. Houk
CHIEF COUNSEL .....	J. L. Hoffland	CHIEF, CONTRACT ADMINISTRATION AND AUDIT DIVISION .....	Jay C. Chambers
ADMINISTRATIVE OFFICER .....	Robert E. Adams	INFORMATION OFFICER .....	Fred W. Murkland
ACTING CHIEF, IRON AND FERRO-ALLOY DIVISION .....	Williams S. Martin		
ACTING CHIEF, BASE METALS DIVISION .....	A. G. Keating		

## FIELD TEAMS

Contacts for Field Investigations

<b>REGION I, ALASKA</b> Executive Officer: S. H. Lorain; Bureau of Mines, P. O. Box 560, Juneau, Alaska.	Executive Officer: A. B. Needham, 2908 Colfax Avenue, South Minneapolis 8, Minnesota.
<b>REGION II, NORTHWESTERN</b> Washington, Oregon, Idaho & Montana. Executive Officer: A. E. Weissenborn, South 157 Howard Street, Spokane 8, Washington.	<b>REGION VI, SOUTH CENTRAL</b> Kansas, Louisiana, Oklahoma, Texas, Arkansas, Missouri. Executive Officer: David Gallagher, 221 West 3rd St., Joplin, Missouri.
<b>REGION III, SOUTHWESTERN</b> California and Nevada. Executive Officer: H. C. Miller, 1012 Flood Building, 870 Market Street, San Francisco 2, California.	<b>REGION VII, SOUTHEASTERN</b> Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi. Executive Officer: Robert A. Laurence, Room 18, Post Office Building, Knoxville 2, Tennessee.
<b>REGION IV, ROCKY MOUNTAIN</b> Arizona, New Mexico, Colorado, Utah, Wyoming. Executive Officer: W. H. King, Bureau of Mines, 224 New Customhouse Bldg., Denver 2, Colorado.	<b>REGION VIII, NORTHEASTERN</b> Illinois, Indiana, Ohio, Kentucky, Virginia, West Virginia, Maryland, Massachusetts, New York, Vermont, Maine, New Hampshire, Connecticut, Rhode Island, New Jersey, Delaware, Pennsylvania. Act. Executive Officer: W. T. Millar, Bureau of Mines Eastern Experiment Station, College Park, Maryland.
<b>REGION V, NORTH CENTRAL</b> North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Michigan.	



# DEFENSE MATERIALS PROCUREMENT AGENCY

The year 1952 was the first full year of operation for the Defense Materials Procurement Agency—and probably its last. There were increasing signs as the year closed that the job the agency was set up to do would be substantially completed by mid-1953 and that DMPA itself could be closed down, its remaining responsibilities reassigned.

DMPA was established as a temporary unit of the Federal Government to assist the mining industry in expanding production of strategic and critical metals and minerals to a point consistent with estimated requirements. Expansion programs for 42 metals and minerals have been developed. At the end of 1952, 22 of these had been completed. That is, enough production was in sight to assure sufficient supplies of these materials to meet both defense and civilian needs. Of the remaining 20 programs, eight were 90 to 99 per cent completed, four were 80 to 90 per cent complete, one was between 70 and 80 per cent complete, seven were less than 70 per cent complete.

Planned increases in supply by 1955 over 1950 ranged from 6 per cent for lead to 30,000 per cent for the "wonder metal" titanium. DMPA has entered into purchase contracts with private mining concerns for production of 1,053,570 long tons of metallurgical chrome ore; 8,430,000 pounds of cobalt; 16,852,500 pounds of columbite and tantalite ores; 1,465,760 short tons of copper; 250,000 short tons of acid grade fluorspar; 57,850 short tons of lead; 1,070,000 long tons of metallurgical manganese; 9,161,000 pounds of mica; 239,550,000 pounds of molybdenum; 44,922 short tons of nickel; 32,000 short tons of titanium; 35,846,000 pounds of tungsten, and 145,326 short tons of zinc.

Loans by the Reconstruction Finance Corporation and the Export-Import Bank in connection with DMPA expansion programs included: \$245,000 for beryl; \$179,735,000 for columbite and tantalite ores; \$179,735,000 for copper; \$60,000 for iron ore; \$15,042,000 for metallurgical manganese; \$206,000 for tungsten, and \$1,529,000 for zinc.

Accelerated tax amortizations issued by the Defense Production Administration on recommendation of DMPA outranked loans and purchase contracts both in the number of expansion projects and the dollar value of the facilities covered. Industry investments covered by rapid tax write-offs included: \$113,172,000 for columbite and tantalite ores; \$113,172,000 for copper; \$2,795,000 for acid grade fluorspar; \$406,346,000 for iron ore; \$465,672,000 for taconite iron ore; \$9,106,000 for lead; \$528,000 for lithium; \$17,013,000 for metallurgical manganese; \$651,000 for mica; \$19,339,000 for molybdenum; \$7,958,000 for nickel; \$17,084,000 for phosphate rock; \$1,114,000 for rare earths; \$30,236,000 for titanium; \$1,713,000 for tungsten, and \$38,062,000 for zinc.

DMPA also has developed domestic purchase programs—separate from the various expansion agreements with individual firms—to stimulate production of tungsten, mica, manganese, chrome, columbite-tantalite, and beryl. And the agency's Mining Requirements Division, serving as claimant for the mining industry, has helped to keep machinery, equip-

ment and supplies moving to mines and mills through quarterly allotments and priority ratings. This division also assisted in expediting the construction of access roads to mining properties, it aided industry in dealing with manpower and housing problems and helped to solve a variety of power and transportation problems.

Not all of the Government-assisted expansion accomplished to date is a result of DMPA activity. The program already was partly under way when DMPA was established by Executive Order on August 28, 1951. DMPA's domestic expansion program is an extension of the program started by the former Defense Minerals Administration, while many of its foreign projects were started by the Strategic Materials Division of the former Economic Cooperation Administra-

tion. Staff for DMPA was largely recruited through transfer from these agencies—from DMA on November 1, 1951, and ECA on December 14, 1951.

Approximately 460 applications for Government assistance were transferred to DMPA from DMA when that agency was succeeded by DMPA and, in the field of exploration, by the present Defense Minerals Exploration Administration to the Department of the Interior. Up to December 1, 1952, DMPA itself received 526 applications. By the end of 1952, pending applications had been whittled to less than 300, the remainder having been approved, rejected or withdrawn.

The target date for termination of the agency is June 30, 1953. But many of its contracts are long-range and will require follow-through by the Federal Government for several years.

## DEFENSE MATERIALS PROCUREMENT AGENCY WASHINGTON 25, D. C.

Acting Administrator	Russell Forbes
Assistant to Administrator for Defense Coordination	Irving Gumbel
Executive Assistant to Deputy Administrator	John G. Liebert
Assistant to Administrator for Defense Coordination	Irving Gumbel
General Counsel	Albert H. Greene
Acting Director, Program Development Division	James E. Phebus
Director, Domestic Expansion Division	Tom Lyon
Director, Contract Negotiations Division	John G. Ford
Director, Foreign Expansion Division	Charles E. Stott
Director, Mining Requirements Division	Francis B. Speaker
Administrative Officer	William C. Hawthorne

## ATOMIC ENERGY COMMISSION

The New York Raw Materials Office directs the exploration program of the Commission, both foreign and domestic, and maintains branch field offices in Denver, Colorado and Salt Lake City, Utah. During 1952, sub-offices, responsible to the branch offices, were established at

Grants, New Mexico; Butte, Montana; Richfield, Utah and Hot Springs, South Dakota. Additional offices are planned at Albuquerque, New Mexico; Phoenix, Arizona; Ishpeming, Michigan and possibly one or two other points during 1953.

(Continued on page 162)

### ATOMIC ENERGY COMMISSION

Director: Jesse C. Johnson, 1901 Constitution Avenue, N.W., Washington 25, D.C.  
Assistant to Director: George C. Gallagher  
Assistant Director, Domestic Production: James A. Barr, Jr.

#### Branch Offices and Personnel

<b>NEW YORK RAW MATERIALS OFFICE</b> Assistant Director, Exploration: Phillip L. Merritt, 70 Columbus Avenue, New York 23, New York	Temple Street, P.O. Box 2196, Salt Lake City, Utah
<b>FLORIDA BRANCH</b> Chief: James J. Koenig, P.O. Box 1311, Plant City, Florida	<b>RICHFIELD SUB-OFFICE</b> Chief: H. Eugene Nelson, C.P.A. Building, Room 26, P.O. Box 58, Richfield, Utah
<b>DENVER EXPLORATION BRANCH</b> Chief: Charles C. Towle, Jr., Building 41, The Federal Center, P.O. Box 7647, Denver 15, Colorado	<b>BUTTE SUB-OFFICE</b> Chief: Leonard D. Jarrad, Room 215, P.O. Building, Box 1984, Butte, Montana
<b>HOT SPRINGS SUB-OFFICE</b> Chief: Howard S. Stafford, Evans Hotel Annex, P.O. Box 611, Hot Springs, South Dakota	<b>GRAND JUNCTION OPERATIONS OFFICE</b> Manager: Sheldon P. Wimpfen, Director, Production Division; Frank H. MacPherson, Director, Exploration Division; Ernest E. Gordon; P.O. Box 270, Grand Junction, Colorado
<b>SALT LAKE EXPLORATION BRANCH</b> Chief: Ernest E. Thurlow, 222 S. West	<b>GRANTS SUB-OFFICE</b> Chief: Paul Melancon, P.O. Box 487, Grants, New Mexico

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## Atomic Energy Commission

(Continued from page 159)

The Grand Junction operations office supervises the uranium exploration, mining and ore processing operation in the Colorado Plateau area. This Operations Office, established December 1, 1952, replaced the former Colorado Raw Materials Office and consolidated direction of both production and exploration activities for the region.

A number of services are maintained by the Commission for the uranium prospector. A free sample examination service is maintained, in cooperation with the U. S. Geological Survey and the U. S. Bureau of Mines, where prospectors' samples are tested for radioactivity without charge. If the samples are of sufficient interest, a field examination of the uranium occurrences are made by the Commission geologists or by the U. S. Geological Survey staff. In addition, personnel of the Commission's exploration offices and the U. S. Geological Survey staff lend assistance to prospectors in their search for uranium by giving geological advice.

Since October, 1951 the Atomic Energy Commission has placed on open file at various depository libraries, geological and mineralogical reports dealing with the results of some phases of the Commission's exploration program. These reports are not for sale or for free distribution but are available for examination by prospectors and other interested persons at the libraries. During 1952, the Atomic Energy Commission initiated a similar practice of making available to the public information concerning the location of surface areas of unusual radioactivity disclosed by airborne radio-activity surveys. Index maps containing this information are regularly posted at a number of places in the United States. All the Commission's exploration offices as well as many U. S. Geological Survey Offices are among the places at which these maps are displayed.

The Commission, in cooperation with the U. S. Geological Survey, has published a prospectors handbook. It contains the laws and regulations affecting uranium prospectors, details of the domestic ore price schedules and bonus programs of the Commission, descriptive information on uranium minerals and their occurrences including colored illustrations of various types of uranium bearing ore, information on the free sample examination service and the use of radiation detection instruments, and the answers to questions frequently asked about the Commission's program. Entitled, "Prospecting For Uranium," the handbook may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. for \$0.45.

Assistance is given to uranium ore producers on the Colorado Plateau in opening up new uranium producing districts. Under the Federal Aid to Highway Act of 1950 and in cooperation with state highway agencies, access road construction sponsored by the Commission now totals 850 miles, at a cost of \$4,500,000. Further road construction is planned in 1953. As of the end of December, a total of \$1,180,000 was paid out in bonus payments for the initial production and delivery of ore from new and certain existing mining properties under the terms of Domestic Uranium Program Circular No. 6, established in 1951. Of this amount approximately \$930,000 was paid out in 1952.



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National Lead Co., 111 Broadway, New York 6, N. Y.  
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Philadelphia Asbestos Co., 2010 N. 10th St., Philadelphia 40, Pa.  
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Republic Filters Inc., 294 21st Ave., Paterson, N. J.  
Rostone Corp., 136 S. Earle Ave., Lafayette, Ind.  
Ruberoid Co., 500 Fifth Ave., New York 18, N. Y.  
F. E. Schundler & Co., Inc., 504 Railroad St., Joliet, Ill.  
Smith & Kanzler Corp., Linden, N. J.  
Standard Asbestos Mfg. Co., 860 Evergreen Ave., Chicago, Ill.  
Stanco Brake Lining Co., P. O. Box 93, 2727 Clinton Ave., Houston 1, Tex.  
Thermoid Co., 400 Whitehead Rd., Trenton 6, N. J.  
Union Asbestos & Rubber Co., 332 S. Michigan Ave., Chicago, Ill.  
U. S. Gypsum Co., 390 West Adams St., Chicago 6, Ill.  
U. S. Rubber Co., Textile Dept., 1230 Sixth Ave., New York 20, N. Y.  
Victor Mfg. & Gasket Co., 5752 Roosevelt Rd., Chicago, Ill.

### BARITE GRINDERS

(Possible Buyers of Crude Barite)

Acme Barite Co., Mineral Point, Mo.  
Arizona Barite Co., Box 926, Mesa, Ariz.  
Barium Products, Ltd., Box 8-A, Newark, Calif.  
Baroid Sales Division, National Lead Co., P. O. Box 1675, Houston 1, Texas.  
The Glidden Co., Chemical & Pigment Division, 766 50th Ave., Oakland 1, Calif.  
Industrial Minerals & Chemical Co., Sixth and Gilman Sts., Berkeley, Calif.  
Industrial Minerals, Inc., York, S. C.  
Kennedy Minerals Co., 2552 East Olympic Blvd., Los Angeles 23, Calif.  
Magnet Cove Barium Corp., P. O. Box 6504, Houston 5, Texas.  
Mobar Corp., Mineral Point, Mo.  
Mudrite Chemical Corp., P. O. Box 590, Hatch, N. M.  
F. E. Schundler & Co., Inc., 504 Railroad St., Joliet, Ill.  
J. R. Simplot Co., Boise, Idaho  
L. A. Wood, Box 72, Sweetwater, Tenn. (Makes crushed barite only.)

(Possible Buyers of Crushed or Ground Barite for Use in Glass)

Anchor-Hocking Glass Co., 109 N. Broad St., Lancaster, Ohio.  
Ball Bros., Ryan and Burt St., Muncie, Ind.  
Brockway Glass Co., Brockway, Pa.  
Buck Glass Co., Fort and Silica Sts., Baltimore, Md.  
Commercial Glass Co., Fairmont, W. Va.  
Diamond Glass Co., Royersford, Pa.  
Foster-Forbes Glass Co., Marion, Ind.  
Glenshaw Glass Co., Glenshaw, Pa.  
Hazel-Atlas Glass Co., 1942 Danneburg St., Wheeling, W. Va.  
A. H. Kerr & Co., Sand Springs, Okla.  
Litchford-Marble Glass Co., P. O. Box 4707, Los Angeles, Calif.  
Owens-Illinois Glass Co., Duraglas Bldg., Toledo, Ohio.  
Owens-Illinois-Pacific Coast Co., 135 Stockton St., San Francisco, Calif.  
Sterling Glass Co., Lapel, Ind.  
Thatcher Manufacturing Co., Elmira, N. Y.  
Vitro-Agate Co., Parkersburg, W. Va.

(Possible Buyers of Ground Barite for Use in Paint)

Amalgamated Paint Co., Inc., Pier 11, North River, New York, N. Y.  
Armstrong Cork Co., 1010 Concord St., Lancaster, Pa.  
Atlantic Paint & Varnish Works, Wilmington, N. C.  
Baker Paint & Varnish Co., 224 Suydam Ave., Jersey City, N. J.  
E. S. Browning Co., 1515 Third St., San Francisco, Calif.  
C. E. Butler Co., 2868 Hanna St., Oakland 8, Calif.  
Chilton Paint Co., 10 15th Ave., College Point, N. Y.  
Clement Coverall Co., 615 Van Hook St., Camden, N. J.  
Durable Paint Co., 373 Hamilton Ave., Brooklyn, N. Y.  
Fisher Thorsen Co., Inc., 2109 N. W. 22nd Ave., Portland 10, Ore.  
Ford Motor Co., Dearborn, Mich.  
W. P. Fuller & Co., 301 Mission St., San Francisco, Calif.  
General Paint Corp., 2627 Army St., San Francisco 19, Calif.  
R. M. Hollingshead Corp., 8840 Cooper St., Camden, N. J.  
Jaege Paint & Varnish Co., 1697 South 20th St., Philadelphia, Pa.  
Longview Paint & Varnish Co., Longview, Wash.  
R. N. Nason & Co., 151 Potrero Ave., San Francisco, Calif.  
Stay & Day Paint Materials, 2530 E. 14th St., Los Angeles, Calif.  
Tri-City Paint Co., 1220 Fourth St., Berkeley 2, Calif.  
U. S. Gypsum Co., 300 W. Adams St., Chicago, Ill.  
U. S. Kalsomine Co., 50 Church St., New York, N. Y.  
Wesco Waterpaints, Fifth and Grayson Sts., Berkeley 2, Calif.

(Possible Buyers of Ground Barite for Use in Rubber)

Armstrong Cork Co., Lancaster, Pa.  
Atlantic Tubing & Rubber Co., 1756 Cranston St., Providence, R. I.  
Bowling Green Rubber Co., Hoag and Prospect Sts., Toledo 6, Ohio.  
Castle Rubber Co., East Butler, Pa.  
Firestone Tire & Rubber Co., Akron, Ohio.  
General Asbestos & Rubber Co., North Charleston, S. C.  
R. M. Hollingshead Corp., Camden, N. J.  
Johns-Manville Co., Manville, N. J.  
Laurie Rubber Reclaiming Co., New Brunswick, N. J.  
Linear Packing & Rubber Co., 6464 State Rd., Philadelphia, Pa.  
Okonite Co., Passaic, N. J.  
Quaker Rubber Co., 4915 Comly St., Philadelphia 24, Pa.  
Seiberling Rubber Co., Akron, Ohio.  
U. S. Asbestos Division Raybestos-Manhattan, Inc., Mannheim, Pa.  
U. S. Rubber Co., 1232 Sixth Ave., New York 20, N. Y.

(Possible Buyers of Crude Barite for Use in Lithopone)

Eagle-Picher Co., American Bldg., Cincinnati, Ohio.  
The Glidden Co., Chemical Pigment Div., 766 50th Ave., Oakland 1, Calif.  
New Jersey Zinc Co., 160 Front St., New York 7, N. Y.  
Ozark Smelting & Mining Co., 101 Prospect Ave., N.W., Cleveland 1, Ohio.

(Possible Buyers of Crude Barite for Use in Barium Chemicals)

Barium Products Ltd., Newark, Calif.  
Barium Reduction Corp., Drawer 1, South Charleston, W. Va.  
Chemical Products, Cartersville, Ga.  
E. I. du Pont de Nemours & Co., Du Pont Bldg., Wilmington 98, Del.  
Mallinckrodt Chemical Works, St. Louis, Mo.  
National Lead Co., Titanium Div., 111 Broadway, New York, N. Y.

### BENTONITE

American Colloid Co., Merchandise Mart Plaza, Chicago 54, Ill.  
Bradford Oil Refining Co., Bradford, Pa.  
Cities Service Refining Co., Boston, Mass.  
Commercial Minerals Co., San Francisco, Calif.

Gulf Refining Co., 260 S. Broad St. Philadelphia, Pa.  
 Harshaw Chemical Co., 47 Ann St., New York 7, N.Y.  
 Humble Oil and Refining Co., P. O. Box 2180, Houston, Texas.  
 Industrial Minerals and Chemical Co., Berkeley, Calif.  
 Lever Bros. Co., Cambridge, Mass.  
 Magnolia Petroleum Co., Beaumont, Texas.  
 Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill.  
 Quaker State Oil Corp., Emlenton, Pa.  
 Richfield Oil Corp. of New York, Chanin Bldg., New York, N.Y.  
 Socony-Vacuum Oil Co., 26 Broadway, New York, N.Y.  
 Standard Oil Co., of California, 225 Bush St., San Francisco, Calif.

#### BERYLLIUM

Beryl Ores Co., Box 409 Route 1, Arvada, Colo.  
 Beryllium Corp., Reading, Pa.  
 Brush Beryllium Co., 4301 Perkins Ave., Cleveland 3, Ohio.  
 Clifton Products, Inc., Painesville, Ohio.  
 Foote Mineral Co., 18 W. Chelten Ave., Philadelphia 44, Pa.  
 Philipp Bros., Inc., 70 Pine St., New York 5, N.Y.  
 C. Tennant, Sons & Co., Empire State Bldg., New York 1, N.Y.

#### BISMUTH (Metal)

J. T. Baker Chemical Co., Phillipsburg, N. J.  
 Belmont Smelting & Refining Works, Inc., 330 Belmont Ave., Brooklyn, N.Y.  
 Cerro de Pasco Copper Corp., 40 Wall Street, New York 5, N.Y.  
 Mallinckrodt Chemical Works, 2nd & Mallinckrodt Streets, St. Louis 7, Mo.  
 Merck & Co., Inc., Rahway, N. J.  
 National Lead Co., 111 Broadway, New York 6, N.Y.  
 Norwich Pharmaceutical Co., 17 Eaton Avenue, Norwich, N.Y.  
 Charles Pfizer & Co., Inc., 11 Bartlett Street, Brooklyn 6, N.Y.  
 U. S. Metals Refining Co., 61 Broadway, New York 6, N.Y.

#### CADMIUM

American Metal Co., Ltd., Duquesne Division, Pittsburgh, Pa.  
 American Smelting Refining & Mining Co., Fairfield, Utah.  
 American Zinc Lead & Smelting Co., 1600 Paul Brown Bldg., St. Louis, Mo.  
 Anaconda Copper Mining Company, 25 Broadway, New York 4, N.Y.  
 Belmont Smelting & Rfg. Works, Inc., Brooklyn, N.Y.  
 Duquesne Smelting Corp., Pittsburgh, Pa.  
 Federated Metals Div., American Smelting & Rfg. Co., New York, N.Y.  
 Harshaw Chemical Company, 1945 East 97th St., Cleveland 6, Ohio.  
 Metal Traders, Inc., New York, N.Y.  
 Mid-American Non Ferrous Metal Co., Chicago, Ill.  
 North American Smelting Co., Inc., Philadelphia, Pa.  
 Philipp Brothers, Inc., 70 Pine St., New York, N.Y.  
 C. Tennant, Sons & Company, of New York, Empire State Bldg., New York 1, N.Y.  
 United States Smelting Mining & Refining Company, 75 Federal St., Boston, Mass.

#### CHROME ORE (Metallurgical Ore Users)

Electro-Metallurgical Sales Corp., 30 E. 42nd St., New York 17, N.Y.  
 Montana Ferro-Alloy Co., Memphis, Tenn.  
 Ohio Ferro-Alloys Corp., Canton 2, Ohio.  
 Pittsburgh Metallurgical Co., Niagara Falls, N.Y.  
 Rustless Iron & Steel Division of the Armco Steel Corp., 3400 E. Chase St., Baltimore 13, Md.  
 Vanadium Corporation of America, 420 Lexington Ave., New York 17, N.Y.

#### (Chemical Ore Users)

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.  
 Imperial Paper & Color Corp., Glens Falls, N.Y.  
 Mutual Chemical Co. of America, 270 Madison Ave., New York 16, N.Y.  
 Natural Products Refining Co., Jersey City 5, N.J.

#### (Refractory Ore Users)

Allegheny-Ludlum Steel Corp., Brackenridge, Pa.  
 Basic Refractories, Inc., 845 Hanna Bldg., Cleveland 15, Ohio.  
 Bradley & Ekstrom, 320 Market St., San Francisco, Calif.  
 Botfield Refractories Co., 777 S. Swanson St., Philadelphia 47, Pa.  
 Foote Mineral Co., Inc., 18 W. Chelten Ave., Philadelphia 44, Pa.  
 General Refractories Co., 1520 Locust St., Philadelphia 7, Pa.  
 Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Pa.  
 Kaiser Alum & Chem. Corp., 1924 Broadway, Oakland, Calif.  
 E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Pa.  
 U. S. Steel Co., 325 Wm. Penn Place, Pittsburgh, Pa.

#### COBALT

Ceramic Color & Chemical Mfg. Co., New Brighton, Pa.  
 Foote Mineral Co., 18 W. Chelten Ave., Philadelphia 44, Pa.  
 Harshaw Chemical Co., 1945 East 97th St., Cleveland, Ohio.  
 Kennametal, Inc., Latrobe, Pa.  
 The Pyrites Co., Wilmington, Del.  
 The O. Hommel Co., Carnegie, Pa.  
 Shepherd Chemical Co., Highland Avenue, Cincinnati, Ohio.

#### COPPER

American Metal Co., Ltd., Carteret, N. J.  
 American Smelting & Refining Co., El Paso, Tex., Garfield, Utah, Hayden, Ariz., Perth Amboy, N. J., Tacoma, Wash.  
 Anaconda Copper Mining Co., Anaconda, Mont.  
 Inspiration Consolidated Copper Co., Inspiration, Ariz.  
 International Smelting & Refining Co., Miami, Ariz., Tooele, Utah, Perth Amboy, N. J.  
 Kennecott Copper Corp., McGill, Nev., Hurley, N. M.  
 Magma Copper Co., Superior, Ariz.  
 Phelps Dodge Refining Corp., Laurel Hill, N. Y.  
 Phelps Dodge Corp., Douglas, Ariz., Morenci, Ariz., Ajo, Ariz.  
 C. Tennant Sons & Co., Empire State Bldg., New York 1, N.Y.  
 Tennessee Copper Co., Copperhill, Tenn.

#### DIATOMITE

American Cyanamid Co., 30 Rockefeller Plaza, New York, N.Y.  
 A. Daigler & Co., 161 West Kinzie St., Chicago, Ill.  
 General Refractories Co., 1518 Locust St., Philadelphia, Pa.  
 B. F. Goodrich Co., 448 S. Main St., Akron, Ohio.  
 Hyvela Filter Co., 3422 Denton St., Detroit.  
 Industrial Minerals & Chemical Co., 836-38 Gilman St., Berkeley, Calif.  
 Marshall Dill Division, WhitCo Chemical Co., 30 Bluxome St., San Francisco, Calif.  
 Miller Products Co., 1932 S W Water Ave., Portland, Ore.  
 Minerals & Insulation Co., Inc., 240 Webster St., Trenton 4, N.J.  
 National Battery Co., First Nat'l Bank Bldg., St. Paul, Minn.  
 National Filter Media Co., Sales Div. of Filter Media Corp., 1719 Dwell Ave., New Haven, Conn.

#### GRINDERS OF FELDSPAR

Black Hills Tin Co., Tinton, S. D.  
 Carolina Mineral Co., Inc., Kena, N. C.  
 Consolidated Feldspar Corp., Trenton Trust Bldg., Trenton, N. J.  
 Eureka Mica Mining & Milling Co., Portland, Conn.  
 Feldspar Milling Co., Burnsville, N. C.  
 Gladding, McBean & Co., 1919 E. 52nd St., Los Angeles, Calif.  
 Northern Feldspars Corp., W. Rumney, N. H.  
 Standard Flint & Spar Corp., 1401 New York Ave., Trenton 7, N.J.  
 Topsham Feldspar Co., Brunswick, Maine.  
 Western Feldspar Milling Co., 1333 W. Maple Ave., Denver, Colo.

#### FLUORSPAR

##### (Brokers or Selling Agents)

Balfour, Guthrie & Co., Los Angeles, Calif.  
 Bauer-Wilson & Bateman, 138 S. LaSalle St., Chicago, Ill.  
 Continental Ore Co., 500 Fifth Ave., New York City.  
 E. I. du Pont de Nemours & Co., 1007 Market St., Wilmington, Del.  
 Foote Mineral Co., 18 W. Chelten Ave., Philadelphia 44, Pa.  
 Hickman, Williams & Co., Clark Bldg., Pittsburgh, Pa.  
 Kerchner, Marshall & Co., Oliver Bldg., Pittsburgh, Pa.  
 E. J. Lavino & Co., 1528 Walnut St., Philadelphia, Pa.  
 Mercantile Import & Export Corp., 21 East 40th St., New York City.  
 Mercantile Metal & Ore Corp., 60 Wall St., New York City.  
 Miller-Adick Co., Carew Tower, Cincinnati, O.  
 Wm. H. Muller & Co., Inc., 122 East 42nd St., New York City.  
 Oglebay Norton & Co., Hanna Bldg., Cleveland, O.  
 Frank Samuel & Co., Lincoln-Liberty Bldg., Philadelphia, Pa.  
 Sussex Trading Corp., 1 Newark Ave., Jersey City, N. J.  
 Tomlinson & Co., 1500 Walnut St., Philadelphia, Pa.

Note: Purchases direct from producers are made in a great many instances by the following types of industries: Acid Spar—aluminum reduction works, certain chemical manufacturers. Ceramic grade—pottery, glass and dishware plants. Metallurgical grade—ferroalloy producers, steel mills, foundries, cement plants, etc.

#### GERMANIUM

American Zinc, Lead and Smelting Co., Paul Brown Building, St. Louis, Missouri  
 Eagle Picher Co., Mining and Smelting Div., First Nat. Bank Bldg., Miami, Okla.

#### GRAPHITE

Asbury Graphite Mills, Asbury, N. J.  
 Hill and Griffith Co., Cincinnati, O.  
 Pacific Graphite Works, Oakland, Cal.  
 Ray-O-Vac Co., Madison, Wis.

#### IRON ORE

Alan Wood Steel Co., Conshohocken, Pa.  
 Armco Steel Corp., Middletown, Ohio.  
 Barium Steel Corp., 25 Broad St., N. Y., N. Y.  
 Bethlehem Steel Company, Bethlehem, Pa.  
 Chester Blast Furnace, Inc., Chester, Pa.  
 Colorado Fuel & Iron Corp., Pueblo, Colorado.  
 Crucible Steel Co. of America, 405 Lexington Ave., New York, N.Y.  
 Detroit Steel Corp., Portsmouth, Ohio.  
 Eastern Gas and Fuel Ass'n., 250 Stewart Bldg., Boston, Mass.  
 Ford Motor Company, Detroit, Mich.  
 Granite City Steel Co., Box 367, Granite City, Ill.  
 Hanna Furnace Corp., Grant Bldg., Chicago 3, Ill.  
 Inland Steel Co., 38 S. Dearborn St., Chicago 3, Ill.  
 Interlake Iron Corp., 1900 Union Commerce Bldg., Cleveland 14, Ohio.  
 International Harvester Co., 180 No. Michigan Ave., Chicago 1, Ill.  
 Jones & Laughlin Steel Corp., 3rd Ave. and Ross St., Pittsburgh 30, Pa.  
 Kaiser Company, Inc., Fontana, Calif.  
 Lone Star Steel Co., Lone Star, Texas.  
 National Steel Corp., 2800 Grant Bldg., Pittsburgh, Pa.  
 Newport Steel Corp., Newport, Kentucky.  
 Pittsburgh Coke and Chemical Co., 1802 Grant Ave., Pittsburgh, Pa.  
 Pittsburgh Steel Co., P. O. Box 118, Pittsburgh 30, Pa.  
 Republic Steel Corp., Republic Bldg., 25 Prospect Ave., N. W. Cleveland 1, Ohio.  
 Sharon Steel Corp., Sharon, Pa.  
 Sloss-Sheffield Steel & Iron div., Unit'd Pipe & Foundry Corp., Birmingham, Ala.  
 Tennessee Coal, Iron and Railway div., U. S. Steel Corp., Brown-Mart Bldg., Birmingham, Ala.  
 Tennessee Products & Chemical Corp., 404 Amn. Nat'l Bank Bldg., Nashville, Tenn.  
 Weirton Steel Co., Grant Bldg., Pittsburgh, Pa.  
 Wheeling Steel Corp., Wheeling, West Virginia.  
 Woodward Iron Company, Woodward, Ala.  
 Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown 1, Ohio.

#### LEAD

American Metal Company, Ltd., 61 Broadway, New York 6, N.Y.  
 American Smelting & Refining Co., 120 Broadway, New York 5, N.Y.  
 Bunker Hill & Sullivan Mining & Concentrating Co., Kellogg, Idaho.

The Consolidated Mining & Smelting Co., Ltd., Montreal, Canada.  
 The East-Picher Co., American Building, Cincinnati 1, Ohio.  
 International Smelting & Refining Co., 25 Broadway, New York 4, N. Y.  
 Metal Traders, Inc., 67 Wall St., New York, N. Y.  
 National Lead Company, 111 Broadway, New York, N. Y.  
 Philipp Brothers, Inc., 70 Pine St., New York 5, N. Y.  
 St. Joseph Lead Co., 250 Park Ave., New York 17, N. Y.  
 C. Tennant, Sons & Co., Empire State Bldg., New York 1, N. Y.  
 United States Smelting Refining & Mining Co., 75 Federal St., Boston, Mass.

#### LEPIDOLITE

Corning Glass Works, Corning, N. Y.  
 General Electric Co., Nela Park, Cleveland, Ohio.  
 Foote Mineral Co., 18 W. Chelton St., Philadelphia 44, Pa.  
 Pittsburgh Corning Corp., Port Allegany, Pa.

#### MAGNESITE

##### (Dead-burned (refractory) Magnesite)

Basic Refractories, Inc., 845 Hanna Bldg., Cleveland 15, Ohio  
 General Refractories Co., 1600 Real Estate Trust Bldg., Phila. 7, Pa.  
 Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh, Pa.

Note: Basic open-hearth steel furnaces use dead-burned (refractory) magnesite. A complete list of basic open-hearth furnaces may be found in: Directory of Iron and Steel Works of the United States and Canada, American Iron & Steel Inst., 350 Fifth Ave., New York 1, N. Y., 26th ed., 1951.

##### (Caustic Calcined Magnesite)

Armour Fertilizer Works, 816 Walton Bldg., Atlanta, Ga.  
 Consolidated Tile & Deck Coverings, 101 Park Ave., New York 17, N. Y.  
 Dow Chemical Co., Midland, Mich.  
 Electro-Metallurgical Co., 30 E. 42nd St., New York, N. Y.  
 General Electric Co., 1 River Rd., Schenectady, N. Y.  
 Goodyear Tire & Rubber Co., 1144 E. Market St., Akron 16, Ohio  
 Hill Bros. Chemical Co., 2159 Bay St., Los Angeles 21, Calif.  
 Norton Co., 1 New Bond St., Worcester 6, Mass.  
 Westvaco Chemical Div., Food Machinery & Chemical Corp., 161 E. 42nd St., New York 17, N. Y.

#### MAGNESITE AND BRUCITE

Basic Refractories, Inc., 845 Hanna Bldg., Cleveland 15, Ohio.  
 General Magnesite & Magnesite Co., 705 Architects Bldg., Philadelphia 3, Pa.  
 Kaiser Aluminum & Chemical Corp., Kaiser Bldg., Oakland 12, Calif.  
 Northwest Magnesite Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.  
 The Paraffine Cos., Inc., 1550 Powell St., Emeryville 8, Calif.  
 Westvaco Choline Products Corp., 405 Lexington Ave., New York 17, N. Y.

#### MANGANESE ORE

##### (Consumers of Metallurgical-grade Manganese Ore)

American Steel Foundries, 410 N. Michigan Ave., Chicago, Ill.  
 Bethlehem Steel Co., Bethlehem, Pa.  
 Colorado Fuel & Iron Corp., Pueblo, Colo.  
 Continental Steel Co., 1109 S. Main St., Kokomo, Ind.  
 Electro Manganese Corp., Knoxville, Tenn.  
 Kaiser Steel Co., Fontana, Calif.  
 Lincoln Electric Co., 12818 Coit Road, Cleveland, Ohio  
 Lone Star Steel Co., Lone Star, Texas  
 Pittsburgh Metallurgical Co., Niagara Falls, New York  
 Sheffield Steel Corp., Kansas City, Mo.  
 Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.  
 Tennessee Products & Chemical Corp., American National Bank Bldg., Nashville, Tenn.  
 U. S. Steel Co., 535 William Penn Place, Pittsburgh 30, Pa.  
 Woodward Iron Co., Woodward, Alabama

##### (Consumers of Battery and Chemical-grade Manganese Ores)

Acme Battery Co., 59 Pearl St., Brooklyn, N. Y.  
 Anchor Hocking Glass Corp., 409 N. Broad St., Lancaster, Ohio  
 Arceda, Inc., P. O. Box 6686, Sparrows Point, Ind.  
 Burgess Battery Company, Freeport, Ill.  
 Foote Mineral Co., 10 E. Chelton Ave., Philadelphia 44, Pa.  
 General Dry Batteries, Inc., Cleveland, Ohio  
 General Electric Co., Nela Park, Cleveland, Ohio  
 E. J. Lavine & Company, 1528 Walnut St., Philadelphia 2, Pa.  
 Lincoln Electric Co., 12818 Coit Road, Cleveland, Ohio  
 Ray-O-Vac Company, Madison, Wis.  
 Tennessee Eastman Corp., Kingsport, Tenn.  
 Union Carbide & Carbon Corp., 30 East 42nd St., New York, N. Y.  
 U. S. Electric Mfg. Corp., 222 West 14th St., New York 11, N. Y.  
 Verona Chemical Co., 26 Vernon Ave., Newark, New Jersey  
 Winchester Repeating Arms Co., New Haven 4, Conn.

#### MERCURY

Allied Chemical & Dye Corp., The Solvay Process Div., P. O. Box 271, Syracuse, N. Y.  
 American Cyanamid Co., General Explosives Div., 20 Rockefeller Plaza, New York 20, N. Y.  
 American Meter Co., Erie, Pa.  
 Automatic Steel Products, Inc., Mercury Clutch Div., 1201 Camden Ave., S. W., Canton 6, Ohio.  
 Bailey Meter Co., 1852 Ivanhoe Rd., Cleveland 10, Ohio.  
 J. T. Baker Chemical Co., Phillipsburg, N. J.  
 F. W. Berk & Co., Inc., Woodridge Div., Box 38, Woodridge, N. J.; Coast Chem. Div., 55 New Montgomery St., San Francisco, Cal.  
 L. D. Caulk, Milford, Del.  
 E. I. du Pont de Nemours & Co., Inc., Methods Div., Du Pont Bldg., Wilmington 93, Del.  
 Foxboro Co., Foxboro, Mass.  
 General Aniline & Film Corp., General Aniline Works Div., 435 Hudson St., New York 14, N. Y.  
 General Color Co., 24 Avenue B, Newark 5, N. J.  
 General Electric Co., Purchasing Dept., 1 River Road, Schenectady 5, N. Y.

Gordon I. Gould & Co., 58 Sutter St., San Francisco 4, Calif.  
 Mallinckrodt Chemical Works, Jersey City 5, N. J.  
 Mathieson Chemical Corp., Mathieson Bldg., Baltimore 3, Md.  
 Merck & Co., Inc., Lincoln Ave., Rahway, N. J.  
 The Mercol Corp., 4201 Belmont Ave., Chicago 41, Ill.  
 Metalsalts Corp., 200 Wagaraw Rd., Hawthorne, N. J.  
 Minneapolis Honeywell Regulator Co., 2753 4th Ave. S., Minneapolis 8, Minn.; Brown Instrument Div., 4331 Wayne Ave., Philadelphia, Pa.  
 Nepera Chemical Co., Inc., Yonkers 2, N. Y.  
 Phillips Petroleum Co. Bartlesville, Okla.  
 Public Service Electric & Gas Co., Electric Dept., 60 Park Place, Newark 1, N. J.  
 Quicksilver Producers Association, 407 Sansome St., San Francisco 11, Calif.  
 Thomas A. Edison, Inc., Primary Battery Div., Bloomfield, N. J.  
 Union Carbide & Carbon Corp., 30 E. 42nd St., New York, N. Y.  
 U. S. Vanadium Corp., Niacet Chemicals Div., Box 807 Niagara Falls, N. Y.  
 Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, N. J.  
 Wyandotte Chemical Corp., Wyandotte, Mich.

#### MICA

American Mica Insulation Co., Frelinghuysen Ave., Newark, N. J.  
 Ford Radio & Mica Corp., 536 63rd St., Brooklyn, N. Y.  
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.  
 Huse-Libery Mica Co., 177 Camden St., Boston, Mass.  
 Industrial Mica Corp., 945 61st St., Brooklyn, N. Y.  
 Reliance Mica Co., 341 39th St., Brooklyn, N. Y.  
 Spruce Pine Mica Inc., Spruce Pine, N. C.  
 Sylvania Electric Products Inc., Emporium, Penn.  
 Western Electric Co., Inc., Hawthorne Works, 195 Broadway, New York 7, N. Y.

#### MICA GRINDERS

##### (Buyers of Domestic Scrap Mica)

Asheville Mica Co., Biltmore, N. C.-Dry  
 Concord Mica Corp., 25 Chestnut St., Penacook, N. H.-Wet  
 Deneen Mica Co., Erwin, Tenn.-Dry  
 Franklin Mineral Products Co., Franklin, N. C.-Wet and Dry  
 Richmond Mica Corp., 900 Jefferson Ave., Newport News, Va.-Wet  
 Thompson-Weinman, Cartersville, Ga.-Dry  
 U. S. Mica Co., Inc., Stamford, Conn.-Dry  
 Western Nonmetallics, Inc., Pueblo, Colo.-Dry

#### MOLYBDENUM CONCENTRATES

J. T. Baker Chemical Co., Phillipsburg, N. J.  
 Electro Metallurgical Div., Niagara Falls, N. Y.  
 Climax Molybdenum Co., 509 Fifth Ave., New York, N. Y.  
 Molybdenum Corp. of America, 500 Fifth Ave., New York, N. Y.  
 Republic Steel Corp., Canton, Ohio  
 S. W. Shattuck Chemical Co., Denver, Colo.

#### NICKEL

American Smelting & Refining Co., 120 Broadway, New York, N. Y.  
 Cosmo Metal Alloys Co., 275 Front St., New York, N. Y.  
 J. A. Samuel & Co., 220 Broadway, New York, N. Y.  
 Sulmet Alloys Co., Inc., Wellington St. and Erie R.R., Clifton, N. J.  
 United States Smelting Refining & Mining Co., 1 State St., Boston, Mass.

#### PERLITE

American Bildrok Co., 2001 West Pershing Road, Chicago 9, Ill.  
 American Perlite Corp., 26th & B Streets, Yard 2, Richmond, Calif.  
 Atlantic Perlite Co., 1919 Kenilworth Ave., Washington 19, D. C.  
 Buffalo Perlite Corp., 100 Sugg Road (Cheektowaga), Buffalo 21, N. Y.  
 Carolina Perlite Co., Inc., P. O. Box 158, Salisbury, N. C.  
 The Cleveland Gypsum Co., 1276 West Third Street, Cleveland, O.  
 Coast Perlite Corp., 650 S. Clarence St., Los Angeles 23, Calif.  
 Combined Metals Reduction Co., Panacalite Div., 218 Felt Bldg., Salt Lake City, Utah.  
 Dant & Russell, Inc., Dantore Products Div., 711 Equitable Bldg., Portland 4, Ore.  
 Great Lakes Carbon Corp., Perlite Div., 18 E. 48th St., New York 17, N. Y.  
 Gregg Products Co., 528 Bridge St., N. W., Grand Rapids 4, Mich.  
 Midwestern Perlite Corp., P. O. Box 758, Oklahoma City, Okla.  
 Minerals Processing Corp., 520 Van Rensselaer St., Syracuse, N. Y.  
 Minnesota Perlite Corp., 315 W 86th St., Minneapolis 20, Minn.  
 Ozark-Mahoning Co., Ozark Chem. Div., Tulsa, Okla.  
 Paramount Perlite Co., 16236 S. Illinois St., Paramount, Calif.  
 Pennsylvania Perlite Corp., P. O. Box 694, Allentown, Penn.  
 Peerless Perlite Co., 2807 So. Fairfax Ave., Los Angeles 16, Calif.  
 Perlite, Inc., 636 N. Third West, Salt Lake City 3, Utah.  
 Perlite of Houston, Inc., P. O. Box 14024, Houston, Texas.  
 Perlite Industries, Inc., P. O. Box 11, Terminal, Texas.  
 Perlite Industries of Arizona, 2123 E. Hershaw Rd., Phoenix, Ariz.  
 Perlite Manufacturing Co., P. O. Box 478, Carnegie, Penn.  
 Perlite Products, Inc., Primos, Penn.  
 Perlite Products Corp., Box 6085, Dallas, Texas.  
 Precast Slab & Tile Co., Inc., 1367 S. Kingshighway Blvd., St. Louis 10, Mo.  
 Tennessee Products and Chem. Corp., American Ntl. Bank Bldg., Nashville 3, Tenn.  
 Texas Perlite Corp., 2611 N. Sylvania St., Fort Worth, Texas.  
 Sno-Lite Products Co., P. O. Box 58, Reno, Nev.  
 United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.  
 United States Perlite Co., 609 S. Grand Ave., Los Angeles 14, Calif.

#### PLATINUM

The American Platinum Works, 225 New Jersey R. R. Ave., Newark 5, N. J.  
 Baker & Co., Inc., 113 Astor St., Newark 5, N. J.  
 Sigmund Cohn & Co., 44 Gold St., New York 7, N. Y.  
 Goldsmith Bros. Smelting & Refining Co., 58 E. Washington St., Chicago 36, Ill.  
 Handy & Harman, 82 Fulton St., New York 7, N. Y.  
 Johnson, Matthey & Co., Inc., 698 Fifth Ave., New York 20, N. Y.



Kastenhuber & Lehrfeld, Inc., 21 West 46th St., New York 19, N. Y.  
 Montana Assay Office, 616 S.W. 2nd Ave., Portland 4, Ore.  
 Pacific Platinum Works, 253 S. Broadway, Los Angeles 12, Calif.  
 J. A. Samuel & Co., 229 Broadway, New York 7, N. Y.  
 Wildberg Bros. Smelting & Refining Co., 742 Market St., San Francisco 2, Calif.  
 Western Gold & Platinum Works, 559 Bryant St., San Francisco 7, Calif.

#### PYRITE

American Smelting & Refining Co., 129 Broadway, New York 5, N. Y.  
 Anaconda Copper Mining Co., 25 Broadway, New York 4, N. Y.  
 Baugh Chemical Company, Baltimore, Maryland.  
 Davidson Chemical Corporation, 20 Hopkins Place, Baltimore 3, Maryland.  
 Foote Mineral Company, 18 West Cheltenham Ave., Philadelphia 44, Pa.  
 General Chemical Division, Allied Chemical & Dye Corp., P. O. Box 4040, Denver, Colorado.  
 Norton Company, Worcester, Massachusetts.  
 Owens Illinois Glass Company, Streator, Illinois.  
 Reliance Phosphate Company, Savannah, Georgia.  
 Stauffer Chemical Company, 636 California St., San Francisco 8, Calif.

#### QUARTZ

##### (Radio Grade)

Bliley Electric Co., 200 Union Station Bldg., Erie, Pa.  
 Bulova Watch Co., 6210 Woodside Ave., Woodside, L. I., N. Y.  
 Dallons Laboratories, 5066 Santa Monica Blvd., Los Angeles 27, Calif.  
 Dowling Crystal Co., 921 E. Fort Ave., Baltimore, Md.  
 Electrical Products Corp., 950 - 30th St., Oakland, Calif.  
 Electronics, Inc., Cedar Rapids, Iowa.  
 General Electric Co., Electronics Div., Syracuse, N. Y.  
 Ingram Labs., Inc., Griffin, Ga.  
 The James Knights Co., 101 E. Church St., Sandwich, Ill.  
 E. B. Lewis & Co., 11 Bragg St., E. Hartford, Conn.  
 Monitor Products Co., 815 Fremont Ave., South Pasadena, Calif.  
 Precision Crystal Lab., 2223 Warwick Ave., Santa Monica, Calif.  
 RCA Victor Div. of Radio Corp. of America, Front & Cooper Sts., Camden, N. J.  
 Scientific Radio Products Co., Inc., 215 South 11th St., Omaha, Nebr.  
 Sheroil Crystals, Inc., 1401 Fairfax Trafficway, Kansas City, Kans.  
 Standard Crystal Co., 400 Armstrong Ave., Kansas City 1, Kans.  
 Precision Instrument Co., 57-02 Hoffman Dr., Elmhurst, N. Y.  
 Western Electric Co., Inc., 195 Broadway, New York, N. Y.  
 Westline Electronics Co., 11660 W. Olympic, Los Angeles 25, Calif.  
 Office of the Chief Signal Officer, Procurement and Distribution Div., Attn: SIGDB 2B, The Pentagon Bldg., Washington 25, D. C.  
 Mare Island Naval Shipyard, Attn: Asst. Control Supt. (Stock Control), Vallejo, Calif.  
 Norfolk Naval Shipyard, Code 357, Production Specialist, Portsmouth, Va.  
 Pearl Harbor Naval Shipyard, Commander (Code 501), Navy #128, Fleet Post Office, San Francisco, Calif.  
 Squier Signal Laboratory, Director, Attn: SIGEL-SFC-1, Project 869A, Fort Monmouth, N. J.

#### RARE-EARTH ORES

(Cerium ores, monazite sand, bastnaesite, other thorium-bearing ores)

Lindsay Light & Chemical Co., West Chicago, Illinois.  
 Maywood Chemical Works, Maywood, N. J.  
 Rare Earths, Inc., R. D. #1, Paterson, N. J.

#### SPODUMENE

Corning Glass Works, Corning, N. Y.  
 Foote Mineral Co., 18 E. Cheltenham Ave., Philadelphia 44, Pa.  
 Maywood Chemical Works, Maywood, N. J.  
 Metallor Corp., 1320 Rand Tower, Minneapolis, Minn.  
 National Enameling and Stamping Co., 270 N. 12th St., Milwaukee, Wis.  
 Owens Corning Fiberglass Corp., Newark, Ohio.

#### STRONTIUM ORES

Associated Metals & Minerals Corp., 40 Rector St., New York, N. Y.  
 J. T. Baker Chemical Co., Phillipsburg, N. J.  
 Barium Products, Ltd., Modesto, Calif.  
 Barium Reduction Corp., Charleston, W. Va.  
 E. I. du Pont de Nemours & Co., Inc., 11th & Orange Sts., Wilmington, Del.  
 Foote Mineral Co., Inc., 12 E. Cheltenham Ave., Philadelphia, Pa. (minerals).  
 General Electric Co., 1 River Road, Schenectady, N. Y.  
 Chas. Hardy, 415 Lexington Ave., New York, N. Y.  
 Harshaw Chemical Co., 1933 E. 97th St., Cleveland, Ohio.  
 Hummel Chemical Co., 90 West St., New York, N. Y.  
 Jungman & Co., 157 Chambers St., New York, N. Y.  
 J. A. Samuel & Co., 220 Broadway, New York, N. Y.

#### TANTALITE AND COLUMBITES

Tantalite—Fansteel Metallurgical Corp., North Chicago, Ill.  
 Columbite—Electro Metallurgical Co., 30 E. 42nd St., New York 17, N. Y.

#### TIN

American Smelting and Refining Co., 120 Broadway, New York 5, N. Y.  
 Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.  
 Reconstruction Finance Corp., Office of Metals Reserve, 811 Vermont Ave., Washington 25, D. C.  
 C. Tennant, Sons & Co., Empire State Bldg., New York 1, N. Y.  
 Vulcan Detinning Co., Seward, N. J.

#### TITANIUM MINERALS

(Ilmenite—Pigment Manufacturers)

American Cyanamid Co., Calco Chemical Div., Eastern Turnpike, Bound Brook, N. J.  
 The Chemical & Pigment Co., 6401 St. Helena Ave., Baltimore 22, Md.  
 E. I. du Pont de Nemours & Co., Inc., Methods Div., Du Pont Bldg., Wilmington 98, Del.  
 National Lead Co., 111 Broadway, New York 6, N. Y.

#### (Ilmenite & Rutile—Welding Rod Manufacturers)

Actar, Inc., P. O. Box 168, Bedford, Ohio.  
 American Brake Shoe Co., 230 Park Ave., New York 17, N. Y.  
 Arcos Corp., 1500 So. 56th St., Philadelphia 43, Pa.  
 Arcrods Corp., 60 E. 42nd St., New York 17, N. Y.  
 Champion Rivet Co., 10931 Harvard Ave., Cleveland 15, Ohio.  
 Harnischfeger Corp., 4400 W. National St., Milwaukee, Wis.  
 Hollup Corp., 4700 W. 19th St., Chicago 50, Ill.  
 R. G. LeTourneau, Inc., Peoria, Ill.  
 Shober Sales Co., 900 W. Weber Ave., Stockton, Calif.  
 A. O. Smith Corp., 3533 N. 27th St., Milwaukee 1, Wis.  
 Stoddy Co., Whittier, Calif.  
 Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh, Pa.

#### (Ilmenite & Rutile—Alloy Manufacturers)

Aluminum Co. of America, 1200 Ring Bldg., Washington 6, D. C.  
 Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.  
 Titanium Alloy Mfg., Div. National Lead Co., 111 Broadway, New York 6, N. Y.  
 Union Carbide & Carbon Corp., 30 East 42nd St., New York 17, N. Y.  
 Vanadium Corp. of America, 420 Lexington Ave., New York 17, N. Y.

#### (Rutile Dealers)

Berkshire Chemicals, Inc., 420 Lexington Ave., New York 17, N. Y.  
 L. H. Butcher Co., 3628 E. Olympic Blvd., Los Angeles 23, Calif.  
 Foote Mineral Co., 18 W. Cheltenham Ave., Philadelphia 44, Pa.  
 International Titanium Corp., 111 Broadway, New York 6, N. Y.  
 Metal Traders, Inc., 67 Wall St., New York 5, N. Y.  
 Oretraction, Inc., 7425 Thomas St., Pittsburgh 8, Penna.  
 C. Tennant Sons & Co., of New York, Empire State Bldg., New York 1, N. Y.

#### (Titanium Sponge Producers)

E. I. du Pont de Nemours and Company, DuPont Building, Wilmington 98, Del.  
 Titanium Metals Corp. of America, 60 East 42nd St., N. Y. 17, N. Y.  
 Crane Company, 836 Michigan Ave., Chicago 5, Ill.

#### TUNGSTEN CONCENTRATES

Bishop Concentrate & Cleaning Co., Bishop, California.  
 Braeburn Alloy Steel Co., Div. of Continental Copper & Steel Ind., Inc., Braeburn, Pennsylvania.  
 Columbia Tool Steel Company, Chicago Heights, Illinois.  
 Crucible Steel Company of America, 405 Lexington Avenue, New York, N. Y.  
 E. Fernstrom, 648 West 3rd Street, Tucson, Arizona.  
 Ferro Corporation, 4150 East 56th Street, Cleveland, Ohio.  
 Firth Sterling Steel & Carbide Corp., McKeesport, Pennsylvania.  
 Foote Mineral Company, 18 West Cheltenham Ave., Philadelphia, Pa.  
 General Electric Company, Cleveland Wire Works, Lamp Dept., 1331 Chardon Road, Euclid 17, Ohio.  
 Jessop Steel Company, Washington, Pennsylvania.  
 Kennametal, Inc., Latrobe, Pa.  
 Latrobe Electric Steel Company, Latrobe, Pa.  
 Molybdenum Corp. of America, 500 Fifth Avenue, New York, N. Y.  
 Shattuck Chemical Company, 1805 So. Bannock Street, Denver, Colo.  
 Sunset Tungsten Mines, Bishop, California.  
 Sylvania Electric Products Co., Tungsten & Chemical Division, Box 70, Towanda, Pennsylvania.  
 U. S. Vanadium Company, Div. of Union Carbide & Carbon Corp., 30 E. 42nd Street, New York, N. Y.  
 Vanadium Alloy Steel Company, Latrobe, Pa.  
 Vulcan Crucible Steel Company, Aliquippa, Pennsylvania.  
 Wah Chang Corporation, Woolworth Building, New York 7, N. Y.  
 Westinghouse Electric Corp., 1-71 MacArthur Avenue, Bloomfield, N. J.

#### URANIUM-VANADIUM ORES

American Smelting and Refining Co., Ore Purchasing Depot, Edgemont, S. D.  
 Atomic Energy Commission, Ore Purchasing Depot, Monticello, Utah, or Marysville, Utah, and Shiprock or Grants, N. M.  
 Climax Uranium Co., Grand Junction, Colo.  
 U. S. Vanadium Co., Rifle, Colo., or Uravan, Colo.  
 Vanadium Corp. of America, Durango, Colo., Naturita, Colo., and Hite, Utah.  
 Vitro Chemical Co., 600 W. 33rd St., Salt Lake City, Utah.

#### ZINC

The American Metal Co., Ltd., 61 Broadway, New York 6, N. Y.  
 American Smelting & Refining Co., 120 Broadway, New York 5, N. Y.  
 American Zinc Co. of Illinois, 1600 Paul Brown Bldg., St. Louis, Mo.  
 Anaconda Copper Mining Co., 25 Broadway, New York 4, N. Y.  
 Associated Metals & Minerals Corp., 75 West St., New York 6, N. Y.  
 Athletic Mining & Smelting Co., Fort Smith, Ark.  
 E. I. du Pont de Nemours & Co., 1007 Market St., Wilmington 98, Del.  
 Eagle-Picher Co., American Bldg., Cincinnati 1, Ohio.  
 Eagle-Picher Mining & Smelting Co., Miami, Okla.  
 W. R. Grace & Company, Hanover Square, New York, N. Y.  
 The Hegler Zinc Company, Danville, Ill.  
 International Minerals & Metals Corp., 11 Broadway, New York 4, N. Y.  
 Matthiessen & Hegeler Zinc Co., La Salle, Ill.  
 Metal Traders, Inc., 67 Wall St., New York, N. Y.  
 New Jersey Zinc Co., 160 Front St., New York 7, N. Y.  
 Philipp Brothers, Inc., 70 Pine Street, New York 5, N. Y.  
 St. Joseph Lead Co., 250 Park Ave., New York 17, N. Y.  
 The Sherwin-Williams Co., Ozark Smelting & Mining Division, 101 Prospect Ave., N.W., Cleveland 1, Ohio.  
 Sullivan Mining Co., Box 209, Kellogg, Idaho.  
 C. Tennant, Sons & Co., Empire State Bldg., New York 1, N. Y.  
 U. S. Steel Corp., 436 Seventh Ave., Pittsburgh 30, Pa.  
 United Zinc Smelting Corp., 50 Union Square, New York 3, N. Y.

#### ZIRCON

F. W. Berk & Co., Woodridge, N. J.  
 Cohart Refractories Co., Louisville, Ky.  
 Electro Metallurgical Div., Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.  
 Foote Mineral Co., 18 W. Cheltenham Ave., Philadelphia 44, Pa.  
 International Titanium Corp., 120 Broadway, New York 5, N. Y.  
 Oretraction, Inc., 7505 Meade St., Pittsburgh, Pa.  
 Titanium Alloy Mfg. Div., National Lead Co., 111 Broadway, New York 6, N. Y.

# DIRECTORY

## United States Mining Operations

### ALASKA

#### A & S MINING CO

Fairbanks  
PLACER, Crevice Cr., Koyukuk dist  
Yukon R region, nonfloat, Au  
Idle

#### ADMIRALTY - ALASKA GOLD MINING CO

Box 529, Juneau  
Pres: Henry Raden  
Gen Mgr: W S Pekovich  
LODE MINE, Punter Bay, Chicagof  
dist, SE Alaska reg, Au, Ag, Cu, Ni, Co  
Cons Engr: N C Stines  
100-TON GRAV FLOT MILL  
Supt: G W Powell  
Under devel

#### ALAMCO, INC

Fairbanks  
BOULDER CR LODE, Tok dist, Sb  
SAWTOOTH MT LODE, Rampart  
dist, Sb  
SMITH CR LODE, Koyukuk dist  
Yukon R dist, Sb

#### ALASKA EMPIRE GOLD MINING CO

Box 529, Juneau  
Pres: N C Stines  
VP: Dr L P Dawes  
Dir: V B Wallder  
Gen Mgr: W S Pekovich  
MINE at Hawk Inlet, underground  
Au, Ag, Idle  
100-TON GRAV FLOT MILL  
Met: G W Powell

#### ALASKA EXPLOR & MNG CO

Box 136, Pullman, Wash  
Pres: W C Moys  
Sec-Treas: J E McCoy  
Mgr: Mike A Trepte  
PLACER on Bird Cr near Talkeetna,  
Yentna dist, Cook Inlet-Susitna region  
hydraulic, Au  
(Leased to Mike Trepte)

#### ALASKA GOLD MOUNTAIN MINES, LTD

714 Garfield Bldg, Los Angeles, Calif  
Pres: Charles F Hutchins  
MINE at Ketchikan, Au, Ag  
35-TON MILL  
Idle

#### ALASKA JUNEAU GOLD MNG CO

1022 Crocker Bldg, San Francisco, Calif  
Pres: C A Norris  
VPs: Worthen Bradley  
P R Bradley, Jr  
Sec-Treas: D L Feathers  
MINE at Juneau, underground  
Au, Ag, Pb, Idle  
14,000-TON GRAV FLOT MILL  
Gen Mgr: J A Williams  
Asst Gen Mgr: E G Nelson  
Purch Agt: Northwest Lead Co

#### ALASKA LUCKY STRIKE INC

Cordova  
Pres & Gen Mgr: W H Chase  
Sec: I D Bogart  
LODE MINE, 22 mi E of Cordova,  
Prince William Sound dist  
Copper R region, Au  
50-TON GRAV MILL  
KENNEDY BALL SMELTER  
Idle

#### ALASKA METALS MNG CO

Box 965, Fairbanks  
YELLOW PUP & STEPPOVICH  
LODE MINES, Gilmore Dome,  
Fairbanks dist, Yukon R region, W  
Under devel

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To provide the greatest possible utility, this list of United States mining operations is presented alphabetically by state. Listings are carried under the name of the operating company, owning company, mine or individual operator, according to the wishes of the parties concerned.

The properties listed were all active and producing when surveyed, except in cases where "under development" and "idle" have been added. Totally inactive properties offering no indication of an early resumption of operation have been deleted.

Tonnages listed are for daily production, unless otherwise noted. Minerals and metals are listed in order of importance. An attempt was made to list personnel in the areas where they are active. Unless otherwise specified, mill and smelter addresses are the same as that given for the mine.

The list was compiled after a careful survey of some 7,000 mining and processing operations, both active and dormant, in the United States and Alaska. Questionnaire forms covering major operating details and personnel were mailed over a period of six months. Where information supplied by the operator or owner was not complete, supplementary data obtained for MINING WORLD field reports compiled by staff members during the course of nearly a half-million miles of mine-to-mine travel during the past few years and from records furnished by the MINING WORLD news bureau and federal and state mining agencies.

While MINING WORLD cannot guarantee 100 percent accuracy of this directory, it believes the list is the best obtainable from any source.

#### ALASKA PACIFIC CONS MINING CO

609 Colman Bldg, Seattle 4, Wash  
Pres: V A Montgomery  
VP & Gen Mgr: Wm M Stoll  
Sec: Carl W Eisman  
INDEPENDENCE MINE, 25 mi N of  
Wasilla, underground, Au, Idle  
100-TON FLOT-AMAL MILL

#### ALASKA PLACER CO

327 Colman Bldg, Seattle, Wash  
Pres & Gen Mgr: Ralph Lomen  
VP: C J Lomen  
Sec-Treas: E P Wood  
PLACER on Nuukluk R, Council dist  
Seward Penn reg, 2 1/2-ft dredge, Au

#### ALDER CREEK MNG CO

Box 1999, Fairbanks  
Partner: N E Sather  
Mgr: J P Drables  
PLACER on Fairbanks and Alder  
Creeks, Fairbanks dist, Yukon R region,  
dragline-dozor-hydraulic, Au

#### ALLUVIAL GOLDS, INC

4556 University Way, Seattle, Wash  
Pres & Gen Mgr: Ernest N Patty  
Dir: Walter Seligman, E D Bull,  
Mrs A D McRae  
MINE on Woodchopper Cr, Circle dist,  
Yukon R region, P O Fairbanks,  
4-ft dredge, Au

#### AMERICAN CREEK EXPLOR CO

Naknek  
Pres & Gen Mgr: Bill Hammersly  
AMERICAN CREEK MINE, placer, Au, Ag

#### AMERO, A W

Chandalar  
NO 2 above Upper Discovery on Big Cr,  
Yukon R region, placer, Au

#### AMY CREEK MNG CO

Box 870, Fairbanks  
Mgr: C M Wells  
PLACER MINE on Amy Cr, Tolovana dist,  
Yukon R region, dragline-dozor: Au  
Idle

#### ANDERSON EDWARD

Nome  
PLACER on Laurada Cr Nome dist,  
Seward Penn region, Au  
Assessment work only

#### ANDERSON, ELLIS

Fairbanks  
TOBIN CR PLACER, Chandalar  
dist, Yukon R region  
Idle

#### ANDERSON, TURY

Fairbanks  
PLACER on Sumner Cr, Tolovana dist  
Yukon R reg, dozer-hydraulic, Au  
(See "A" Mng Co)

#### APOLLO MNG CO

Box 529, Juneau  
APOLLO-SITKA-DELAUDORF CONS  
LODE MINES, Unga Island  
underground, Au, Ag, Cu, Pb, Zn  
GRAV MILL, Idle  
(Under option to W S Pekovich)

#### ATLAS MINES

Box 105, Nome  
Gen Mgr: Geo Waldhelm  
PLACER MINE, 100 mi N of Nome,  
Kugarak dist, Seward Penn reg  
dragline-dozor-hydraulic, Au  
500-YD GRAV MILL

**ATTWOOD, MERTON J**

Chicken  
PLACER MINE, Stonehouse Cr.,  
40-Mile dist, Yukon R region,  
dragline-doser, Au  
Idle

**BACKSTROM, GUST**

Flat  
IDaho PLACER MINE on Flat Cr.,  
Iditarod dist, Yukon R, hydraulic, Au

**BALDWIN, JAMES E &  
CHARLEY MOON**

Box 371, Nome  
PLACER on Sweepstake Cr.,  
Koyuk dist, Seward Penin reg.,  
dragline-doser-hydraulic, Au

**BARTHOLOMAE CORP**

1033 Brea Rd, Fullerton, Calif  
Pres & Gen Mgr: W A Bartholomae, Jr.  
GOLD PLACER MINE, Gold Run Cr  
Part Clarence  
GOLD MINE, Ester Dome, via  
Fairbanks, idle  
Engr: B W Vallat

**BAUER, RICHARD A**

Eagle  
MINE at Crooked Cr, placer, Au

**BAUQUIER, JOHN**

Flat  
HAPPY PLACERS on Happy Cr  
Iditarod dist, Yukon R region, dozer, Au

**BEATON, NEIL**

Ophir  
PLACER MINE near Ophir  
dredge on lower Ganes Cr, Au

**BEAVER MNG & CONST CO**

Box 1082, Fairbanks  
Pres: Reino Huttula  
PLACER on Gilmore Cr, Fairbanks dist, Au  
Idle

**BEDROCK MNG CO**

c/o Tom Willard, Ophir  
PLACER on Bedrock, Ester & Little  
Creeks, Innoko dist, Yukon R reg  
dozer-hydraulic, Au

**BEISTLINE & JACKSON**

Box 1150, Fairbanks  
MINE, Fairbanks, underground, Au  
25-TON AMAL FLOT MILL  
(Leased from Cleary Hill Mines)

**BELANGER, GEORGE**

Box 1771, Palmer  
PLACER on Albert Cr, Nelchina dist  
Copper R reg, dozer-hydraulic, Au

**BELTZ, JOHN**

Haycock  
PLACER on Bear Cr, Au

**BENICK, EDWARD T**

Gen Del, Seward  
PLACER on Bear Cr, Council dist,  
Seward Penin reg, dozer, Au  
Idle

**BERG, L C**

Box 53, Sitka  
SILVER KING MNG CLAIMS, 18 mi SE of  
Wrangell, Wrangell dist, SE Alaska reg,  
lode, Ag, Au, Pb  
Under devel

**BERRY HOLDING CO**

111 Sutter St, San Francisco, Calif  
Pres: A Duane Bush  
VP: Othmar Berry  
Gen Mgr: Harold Christensen  
PLACER on Eagle Cr 115 mi NE  
of Fairbanks  
(Leased to Frasca & Gibson)

**BIG FOUR MNG CO**

c/o B A Hagarty, 4209 S 33th St,  
Tacoma 3, Wash  
MAHONEY MINE, Ketchikan dist, SE  
Alaska region, lode, Au  
Idle

**BIRCH CREEK MINE**

Circle dist, Ferry  
Owner: Roy Rupp  
PLACER MINE, Au  
Under devel

**BLACK BUTTE MNG CO**

Palmer  
FERN MINE, Willow Cr dist  
Cook Inlet-Susitna reg, lode, Au  
(Leased from Fern Gold Mng Co)

**BLISS, PATRICK J**

Box 2225, Anchorage  
PLACER MINE on Quartz Cr, 80  
mi N of Nome, Hydraulic-doser, Au

**BLUNDELL, JOSEPH B**

Big Lake  
PLACER on Wake Up Cr & Jim Pup  
Koyukuk dist, Yukon R region, Au

**BODIS, GEORGE**

Name  
PLACER on Dick Cr, Serpentine dist,  
Seward Penin reg, hydraulic-doser, Au  
(See Dick Creek Placers)

**BOE, HOMER**

Box 114, Seward  
NEW HOPE-HIRSHEY MINE, Au, Ag,  
Idle

**BOTT, EARL & LYLE**

Wiseman  
GOLD PLACER on Eightmile Cr  
Koyukuk dist, Yukon R region, Au

**BRADLEY, C W**

Talkeetna  
GOLD PLACER on Cache Cr

**BRANDL, PHIL**

Talkeetna  
PLACER on Cache Cr, Yentna dist  
Cook Inlet-Susitna reg, hydraulic, Au

**BRENNER, EDWIN A**

5000 26th St, Seattle 8, Wash  
PLACER on N Grub Cr, Fairbanks dist  
Yukon R reg, Au  
Idle

**BRINKER - JOHNSON CO**

331 California St, San Francisco, Calif  
Pres: W W Johnson  
VP: T Keith Johnson  
PLACER on Caribou Cr, via Fairbanks  
4 1/2-ft dredge, Au, Ag, Idle  
(Owned by Walter W Johnson Co  
Balfour Bldg, San Francisco, Calif)

**BRIGGER, AXEL**

529 E 3rd St, Fairbanks  
PLACER on Owl Cr, 40-Mile dist  
Yukon R reg, Au  
Idle

**BRONNICH, FRED**

Sitka, via Gulikana  
PLACER on Slope Cr, Au

**BRONSON, MRS J L**

Ferry  
PLACER MINE on Moose Cr,  
Kantishna dist, Au

**BROOKS, JACK**

Chicken  
PLACER on Chicken Cr, 40-Mile dist  
Yukon R region, Au  
Idle

**BYSTEDT, JAMES A**

527 L St, Anchorage  
PLACER on Bear Cr, Aniak dist  
Kuskokwim R region, Au

**CALLAHAN ZINC - LEAD CO**

Livewood  
VP Chg Oper: R F Mahoney  
VPs: J B Beatty, H J Hull  
LIVENGOOD PLACERS, 80 mi N of  
Fairbanks, Au, 5500-yd dredge  
Gen Supt: J E Dunn  
Metal: L E Davis  
Geol: Ralph Stitzer  
Mech Engr: V W Washburn  
(See Colorado, Nevada and East)

**CANDLE CREEK MINING CO**

Candle  
Gen Mgr: Jack Allen  
GOLD PLACER on Candle Cr,  
Fairhaven dist

**CANNON, ROBERT**

Teller  
PLACER on Birch Cr, Nome dist,  
Seward Penin region, Au  
Idle

**CANYON CR MINING CO**

Aniak  
Gen Mgr: Jens A Kvamme  
PLACER on Canyon Cr, Aniak dist  
Kuskokwim R reg, dozer-sluice plate-  
hydraulic, Au

**CARSTENS, H C**

Central  
PLACER on Portage Cr, Circle dist,  
Yukon R reg, dozer, Au

**CARLO, WILLIAM**

Ruby  
GOLD PLACER on Ophir Cr

**CASA DE PAGA GOLD CO**

411 Hoge Bldg, Seattle 4, Wash  
Pres: Robert Gillespie  
Sec-Treas: Robert L Stitt  
Gen Mgr: D A Stewart  
Directors: Robert Gillespie, Ken Fisher,  
D A Stewart, Robert L Stitt,  
G H Watkins

IMMACHUCK RIVER PLACER, c/o Weins

(Alaska)

Air Lines, Nome, 20 mi from Deering  
2 dredges, 3 dozers, Au  
Prod: 5,000 cu yds

**CHAPPEL, OLIVER L**

Wiseman  
PLACER on Thompson Pup, Koyukuk dist  
Yukon R reg, hydraulic, Au

**CHATHAM CREEK MINING CO**

Fairbanks  
PLACER on Chatham Cr, Fairbanks  
dist, Yukon R reg, dragline-doser, Au

**CHENA MINING CO**

Fairbanks  
PLACER on Totatlanika R, Bonfield  
dist, Yukon R reg, Au

**CHITITU MINES**

McCarthy  
PLACER at Rex Cr, hydraulic, Au

**CLAICH, MARTIN**

1323 First Ave, Seattle, Wash  
PLACER on Tanana Riv, Fairbanks dist

**CLARK, DONALD D**

Steel Creek  
MONTANA #1 PLACER, 40-Mile dist, Au

**CLEARY HILL MINES**

250 Pere Marquette Bldg  
Minneapolis, Minn  
Pres & Gen Mgr: R E Weyer  
LODE MINE at Fairbanks  
Idle

**CLINE & CLINE PLACER**

Cape Yakutat  
MINE, 140 mi SE of Cordova, Au, Ag  
Under devel

**COBLE & FRANCIS**

Box 1365, Fairbanks  
PLACER on Eureka Cr, Hot Springs  
dist, Au

**COLLINSVILLE MINES, A  
PARTNERSHIP**

1537 H St, Anchorage  
GOLD PLACER, 2,500-yd dragline &  
nonfloat wash pl, 100 air mi NW of  
Anchorage  
Foreman: Carl Durand

**COLORADO CREEK MNG CO**

McGrath  
Partners: John E & Richard S  
Fullerton  
PLACER, 60 mi N of McGrath on  
Colorado Cr, Au, Ag  
Prod: 2,000 cu yds

**COUNCIL DREDGING CO, INC**

Rt 2, Box 2055, Edmonds, Wash  
Pres: H A Dent  
Gen Mgr: F K Dent  
Dir: R S Whaley  
MINE on Ophir Cr, bucket dredge, Au, Ag  
Idle

**COYLE & RASMUSSEN**

MINING CO  
Box 1918, Fairbanks  
Partners: D Coyle & W D Rasmussen  
PLACER on Midnight Cr, Ruby dist,  
hydraulic-doser, Au

**CRANE F D & M E KELLEY**

Nome  
CAPE MT MINE, 105 mi N of Nome  
on Seward Penin, Sn  
Under devel

**CUMMINS, LARRY**

Talkeetna  
PLACER on Pass Cr, Yenta dist,  
Cook Inlet-Susitna reg, shovel-in, Au

**CURRAN, PETER**

Solomon  
PLACER on West Cr, Council  
Bluff dist, Au

**DAHL & BERNARD, EXP CO**

c/o Albert Bernard,  
Box 1505, Fairbanks  
PLACER on Bear Cr, Fairhaven  
dist, Au

**DAHL, ROBERT**

Talkeetna  
#2 BELOW on Nugget Cr,  
Yentna-Cache Cr dist, Au

**DAWSON MINE**

Hollis  
Owner: Wendell Dawson  
MINE, MILL, Ketchikan dist,  
SE Alaska region, Au, Ag  
Idle

**DEAN, TOM**

Hot Springs  
PLACER in Miller Gulch,  
Hot Springs dist, Au

**DE COURCEY MT MINE**

Crooked Creek  
MINE, Aniak dist, Kuskokwim  
Riv reg, Hq

**DEGNAN, J A MNR CO**

Ophir  
PLACER on Ophir Cr, Seward  
dist, dragline-doser, Au

**DEMPSEY, C L**

Box 325, Nome  
PLACER on Lower Willow Cr,  
50 mi NE of Nome, 2 1/2 ft bucket  
dredge, Au  
Under devel

**DICK CREEK PLACERS**

Nome  
PLACER on Dick Cr, Serpentine  
dist, Seward Penin reg,  
hydraulic-doser, Au  
(See George Bodis)

**DINAN, FRANK J**

Rampart  
GOLD PLACER near Rampart

**DONLIN PLACERS**

Crooked Creek  
Gen Mgr: Robert F Lyman  
PLACER in Snow Gulch 10 mi N  
of Crooked Cr, Aniak dist,  
Kuskokwim Riv reg, dozer, Au  
(See Lyman and Acheson)

**DOYLE, JERRY**

Hot Springs  
PLACER on Woodchopper Cr  
Hot Springs dist, Yukon Riv reg, Au

**DRAGON, LEE**

Fairbanks  
PLACER on 40-Mile River

**DRAZENOVICH, PAUL**

Fairbanks  
PLACER on Fish Cr,  
Bonfield-Nenana dist, Au

**DUTCH CREEK MINE**

Talkeetna  
Owner: Mike A Trepte  
PLACER near Yentna, hydraulic  
monitors, Au

**DUVALL, J WM**

Steel Creek  
GOLD PLACER

**EDGECUMBE EXPLOR CO**

Box 754, Sitka  
ECCO MINE, 10 mi SE of Sitka,  
Au, Ag, shaft & adit  
ECCO GRAY MILL at Silver Bay  
Under devel  
(See Calif)

**EDWARDS, HIRK**

Solomon  
QUIGLEY'S HYDRAULIC MINE  
Nome dist, Seward Penin reg  
PLACER on Solomon River,  
hydraulic, Au

**ELMER, A M**

Gulkana  
PLACER on Slate Cr, Au

**ENGELHORN, FORREST L**

Los Molinos, Calif  
PLACER on Cache Cr, Au

**ENGSTROM, HERBERT**

512 Bowdoin Place  
Seattle, Wash  
JUNE #2 PLACER, Box 954,  
Basin Cr, 16 mi N of Nome,  
nonfloat washing pl, Au

**ENSTROM & MCDUGALL**

Hot Springs  
PLACER on American Cr,  
Hot Springs dist, Yukon Riv reg,  
hydraulic-doser, Au

**ERNST, HENRY J**

Box 229, Fairbanks  
PLACER on Bloomer Cr  
Talkeetna dist

**FAIRBANKS GOLD DREDG CO**

Carolanda, Burlingame, Calif  
Mgr: A J Watson  
OPEN PIT MINE at Fairbanks Cr,  
dragline, Au, Ag  
Idle

**FALLS CREEK MNG CO**

Seward  
Pres & Gen Mgr: S A Lieming  
VP & Sec: A R Bergersen  
SKEEN LECHNER MINE, Au, Ag  
25-TON FLOT MILL  
Idle

**FEJES & STRANG**

Rampart  
PLACER on Ruby Cr, dozer, Au

**FENTON, R M**

Box 1207, Fairbanks  
MORELOCK MINE, PLACER on  
Rosa Cr, Melositna dist, Yukon  
Riv reg, hydraulic-doser, Au  
(See Morelock Mining Co)

MINING WORLD



**FERN HOLD MNG CO**  
302 Columbia Bldg  
Spokane, Wash  
Pres: J. L. Drumheller  
VP: Marvin Woldson  
Sec: L. B. Gordon  
**FERN MINE**, Palmer  
underground, Au  
60-TON AMAL-FLOT MILL  
SMELTER, Tacoma, Wash  
(Leased to Black Butte Mng Co)

**FOUR A MINING CO**  
Box 1488, Fairbanks  
Partners: T. F. Anderson &  
C. J. Koudelka  
PLACER on Sumner Cr., Tolovana  
dist., Yukon Riv reg., hydraulic-  
dozer, Au  
(See Tury Anderson)

**FRANKLIN MINING CO**  
Chicken  
Partners: Howard Bayless,  
Dick Roberts, Bob Roberts &  
Ellis Roberts  
PLACERS at Franklin & Chicken,  
hydraulic, dragline, dozer, Au  
(Leased from Fred Whitehead)

**FRANSEN, GUS**  
Gulkana  
PLACER on Slate Cr., Chistochina  
dist., Copper Riv reg., Au

**FRASCA & GIBSON**  
Box 1182, Fairbanks  
PLACER on Eagle Cr., Circle  
dist., hydraulic-dozer  
(Leased from Berry Holding Co)

**FRENCH, WILLIAM**  
Candle  
HYDRAULIC PLACER on Jump Cr.,  
Fairhaven dist., Au

**FREY BROS MINE**  
Box 593, Palmer  
PLACER in Yentna-Cache Cr  
dist., Au

**GAGNON PLACER MINE**  
Box 821, Anchorage  
Owner: Paul L. Gagnon  
PLACERS, Talkeetna  
hydraulic, Au, W  
Under devel

**GEARHART, H O**  
Boundary  
PLACER, Yukon River  
Basin dist., Au

**GILLETTE, B F**  
Nome  
PLACER on Anvil Cr., Nome dist.  
Seward Penin region, shovel-in, Au

**GLISKA, JOE**  
Talkeetna  
PLACER on Pass Cr., Au

**GOLD DUST MINING CO**  
Kotzebue  
Gen Mgr: John L. Bullock  
PLACER on Kougarok Riv., 90 mi  
N of Nome, bucket dredge, Au  
Under devel

**GOLD MINT MINING CO**  
Hope  
Gen Mgr: D. Whiting  
PLACER on Palmer Cr., Hope  
dist., Kenai Penin reg., Au  
Idle

**GOLD PLACERS, INC**  
4556 University Way, Seattle, Wash  
Pres & Gen Mgr: E. N. Patty  
VP: Walter Seligman  
Dir: E. B. Bull & Mrs. A. D. McRae  
GOLD PLACER, Coal Cr.,  
Circle dist., 4-yd dredge

**GOODNEWS BAY MNG CO, INC**  
423 White Bldg, Seattle, Wash  
Pres: A. O. Olson  
VP: Edward Olson  
Sec: R. W. Vinnedge  
Treas: C. J. Johnston  
GOODNEWS BAY PLACER, bucket  
line dredge, hydraulic-dragline-  
dozer, Pt  
Supt: Edward Olson  
Purch Agt: John C. Hill  
Engr: W. W. Spencer

**GRANITE CREEK MNG CO**  
Ruby  
Partners: W. Carlo & J. J. May  
PLACER on Ophir Cr., 50 mi S of  
Ruby, Ruby dist., Yukon Riv reg.,  
hydraulic-dozer, Au

**GRANT LAKE MINE**  
Moose Pass  
Owner: Wm. Kelley  
QUARTZ MINE 4 mi from Moose  
Pass, irregular vein, block  
caving, Au, Ag  
GRAV MILL & SMELTER  
Under devel

**GREIST, DAVID &  
JOHN OLSON**  
Selawic  
PLACER on Selawic Riv., Au

**GRUBSTAKE MINE, INC**  
Wasilla  
MINE & MILL at Grubstake Cr., Au  
Under devel

**GURTLE & MYKLEBUST**  
c/o Grover E. Gurtler, Ophir  
PLACER on Little Cr., Innoko dist.  
Yukon Riv reg., dragline-dozer-  
hydraulic, Au

**HAGBERG, MRS LAURA**  
Haycock  
PLACER on Bear Cr.  
Fairhaven dist., Au

**HAGEN, C A H**  
Nome  
PLACER on Nome Beach, Nome  
dist., Seward Penin reg., Au

**HAMBERG & GLISKA**  
Talkeetna  
PLACER on Pass Cr.,  
Yentna-Cache dist

**HAMBLIN, MARK E**  
Talkeetna  
PLACER, Yentna-Cache Cr dist., Au

**HAMILTON, RAY & ASSOC**  
Millerhouse  
Gen Mgr: Ray Hamilton  
HYDRAULIC PLACER  
9 mi S of Millerhouse, Au  
Idle

**HANSEN, BURNETT F**  
Eagle  
PLACER on Alder Cr., Au

**HANSEN, N G TRADING CO**  
Teller  
PLACER on Gold Run, Port  
Clarence dist., Seward Penin reg., Au

**HARD, ERIC**  
Ophir  
Pres & Gen Mgr: Eric Hard  
Supt: Gus Uotila  
OPHIR CR PLACER, Ophir, Au, Ag  
BEAR CR PLACER, Cripple dist.,  
Au, Ag

**HASSEL & SON**  
Box 1071, Fairbanks  
PLACER MINE, 12 mi from  
Fairbanks near Ester, Au

**HATTON & TURNER**  
Flat  
PLACER at head of Chicken Cr., Iditarod dist.  
Yukon Riv reg., dozer-hydraulic, Au

**HAVERILACK, HARRY F**  
Rampart  
PLACER on Gunnison Cr.,  
Rampart dist., Yukon Riv reg., Au

**HAYES & WHITELEY  
ENTERPRISES**  
810-11th St, Juneau  
Co-Mgrs: Howard C. Hayes &  
S. P. Whiteley

ALASKA JUNEAU TAILINGS,  
partial opr., placer, Au  
CHICAGO TAILINGS, cleanup  
opr only, placer, Au  
100-TON GRAV FLOT MILL  
TREADWELL TAILINGS,  
temp suspended, placer, Au

**HELCOLICON MINES, INC**  
1005 Ruddiman Ave.,  
North Muskegon, Mich  
Pres: Robert C. Armstrong  
PLACER on Klerly Cr., Kiana dist.,  
NW Alaska reg., bucket-line dredge, Au

**HIRST - CHICHAGOF MNG CO**  
415-7th Ave S, Seattle, Wash  
Pres: Geo. Meagher  
Dir: Wallace Lewaky, Dan Coon,  
Frank Speckert, W. Sham Shinn  
HIRST-CHICHAGOF MINE, lode, Au  
Under devel  
50-TON AMAL FLOT MILL  
Idle

**HOSLER MINES**  
McKinley Park  
Gen Mgr: Elmer Hosler  
PLACER on Eureka Cr., Kantishna  
dist., Yukon Riv reg., hydraulic-dozer, Au

**HOPE MINE**  
c/o R. V. Watkins, Box 521,  
Fairbanks  
PLACER on Deep & Faith Cr.,  
hydraulic-dozer, Au

**HOUSTON, ALEXANDER**  
Nome  
PLACER on Dahl Cr., Kougarok  
dist., Seward Penin reg., dozer-  
hydraulic, Au

**HOVELY, OTTO**  
Hot Springs  
PLACER on Cache Cr., Au

**HUNTER & BURNETT**  
Fairbanks  
PLACER on Crooked Cr., Kantishna  
dist., dozer-hydraulic, Au

**HUNTER CREEK MNG CO**  
c/o Melo Jackovich, Box 92,  
Fairbanks  
PLACER on Hunter Cr., Rampart  
dist., hydraulic-dozer, Au

**HURST, VERNON J**  
Fairbanks  
PLACER, Chandalar dist., Au

**IDITAROD OPERATING CO**  
Box 531, Tanana  
Partners: Frank G. Edgington &  
Lars Ingegard  
PLACER on Golden Cr., 30 mi W of  
Tanana near Kallanda Landing, Au

**INNOKO DREDGING CO, INC**  
914-2nd Ave, Seattle, Wash  
Pres: J. F. Griffiths  
Sec: F. H. Molitor  
Gen Mgr: Wilbur Finnigan  
GANES CR PLACER, Ganes Cr.,  
bucket-line dredge, Au, Ag  
Idle

**JACKSON, KIRK D**  
Solomon  
PLACER on Big Hurrah Cr.,  
Nome dist., Au

**JACKSON MINE**  
Box 965, Fairbanks  
Owner: Nels Jackson  
PLACER at Totlatarnika Riv.,  
Bonnfield dist., Yukon Riv reg.,  
hydraulic-dozer, Au  
Under devel

**JANEAU, E A**  
Steel Creek  
SMITH CR BENCH CLAIMS,  
hydraulic, Au

**JENKINS, FRED F**  
Eagle  
PLACER on Flume Cr., Au

**JOHNSON, ARTHUR D**  
Haycock  
PLACER on Sweepstake Cr.,  
Iyuk dist., Au

**JOHNSON, AXEL**  
Council  
PLACER on Pancake Cr.,  
Council Bluff dist., Au

**JOHNSON, ENGBERT**  
Chicken  
PLACER on Ingle Cr., 40-Mile  
dist., Yukon Riv reg., drift, Au

**JOHNSON, FURSETH &  
TROSETH**  
Fairbanks  
PLACER on Cleary Cr., Au

**JOHNSON, HELMER**  
Box 935, Fairbanks  
PLACER on Cleary Cr.,  
hydraulic-dozer, Au  
Idle

**JOHNSON, IVER & CO**  
Ruby  
PLACER on Trail Cr.,  
hydraulic, Au

**JOHNSON & JOHNSON CO**  
Box 914, Fairbanks  
PLACER on Eureka Cr. &  
Glen Gulch, hydraulic

**JOHNSON, PETE**  
Hot Springs  
PLACER on Eureka Cr., Hot  
Springs dist., Yukon Riv reg.,  
assessment work only

**JOKELA & LAZERATION**  
Box 2000, Fairbanks  
Partners: Verne Jokela,  
Charles Lazeration  
GREENBACK CLAIMS, 22 mi N of  
Fairbanks, underground, Au, Ag  
(Leased from Cheechako Mng Co)

**JONES, ROBERT H**  
Wiseman  
PLACER on Smith Cr.,  
Koyukuk dist

**JUMP CREEK MINES**  
Candle  
Owner: Fred Weinard  
Gen Mgr: O. F. Weinard  
PLACER, dozer-hydraulic, Au

**JURICH, JOHN & CARR,  
TOM LIVENGOD**  
PLACER on Lillian Cr.,  
hydraulic

**KANARI & CAREY MNG CO**  
Box 255, Nome  
PLACER on Kougarok Riv., Cape  
Nome precinct, hydraulic, Au

**KING, GEORGE**  
Boundary  
PLACER on Turk Cr., 40-Mile dist.,  
shovel-in, Au

**KINNEY, MRS PAUL**  
Haycock  
PLACER on Sweepstake Cr.,  
Koyuk dist., Au

**KLOSS & DAVIS**  
Partners: Herman Kloss &  
Jack Davis  
K & D MINE, 2 mi from Sunset Cove,  
Petersburg dist., SE Alaska reg.,  
underground, Au, Ag, Sb, Zn, Pb, Zn  
K & D MILL  
Idle

**KOUGABOK FREIGHT &  
MNG CO**  
Box 137, Nome  
Partners: E. C. Straub & Townner  
SURFACE OPH II mi NE of Nome, 1-yd  
dredge, Au  
Under devel

**KUPOFF, N O**  
Box 1650, Fairbanks  
PLACER on Pedro Cr., Fairbanks  
dist., Yukon Riv reg., dozer-  
hydraulic, Au

**L & L MINING CO**  
826 E 26th Ave, Spokane, Wash  
PLACER on Tufty Gulch, Hot  
Springs dist., Au

**LANE, T P**  
Nome  
BIG HURRAH MINE, Nome dist.,  
Seward Penin reg., lode, Au, W  
BIG HURRAH MILL, cyanidation  
of tailings

**LANGLOW, JENS**  
Central  
PLACER on Smith Cr., Circle  
dist., Yukon Riv reg., shovel-in, Au

**LARSEN & BERG**  
c/o Al Berg, Hot Springs  
DRIFT MINE on Woodchopper Cr.,  
Hot Springs dist., Au

**LEACH, F M**  
Circle Springs  
2 PLACER CLAIMS, Ketchum Cr.,  
Au, Idle  
PLACER CLAIM, Portage Cr., Au  
(Leased to H. C. Carstensen)

**LEE BROS DREDG CO**  
Solomon  
Gen Mgr: Richard Lee  
PLACER on Solomon Riv., Seward  
Penin, bucketline, Au, Ag  
Engr: Allan W. Lee  
Prod: 7,500 yds

**LEONARD, HARRY B**  
Wiseman  
PLACER on Gold Cr., Koyukuk  
dist., shovel-in, Au

**LEOV, HARRY**  
Flat  
PLACER on Malamute Pup,  
Iditarod dist., hydraulic, Au

**LE ROY MINING CO**  
Box 4011, Juneau  
RAINBOW & LE ROY MINES at  
Glacier Bay, underground, Au  
Idle

**LINN, ELI**  
Ruby  
LINN MINE at Trail Cr.,  
Nulato, dragline, Au

**LITTLE MINOOK MNG CO**  
Box 1505, Fairbanks  
Pres & Gen Mgr: Albin Martin  
PLACER on Little Minook Cr.,  
Rampart dist., dragline-hydraulic-  
dozer, Au, Ag  
Prod: 600 yds

**LONG CREEK MNG CO**  
Ruby  
Gen Mgr: Hans Tilleson  
PLACER at Long Cr., hydraulic-  
dozer-dragline, Au, Ag

**LOST CHICKEN HILL  
MNG CO, INC**  
Chicken  
Partners: Harold Pierce &  
James Hulbert  
Gen Mgr: George Turner  
LOST CHICKEN HILL MINE, Chicken,

293 mi from Fairbanks, hydraulic-doser, Au  
Under devel

**LOUIS, FRANK**  
Box 810, Fairbanks  
PLACER on No Grub Cr, Au

**LUCKY NELL MINE**  
Hollis  
Owner: J J Matuoka  
MINE 7 mi W of Hollis,  
underground, Au, Ag, Pb  
Idle

**LUCKY SEVEN MINE**  
Millerhouse  
Opr: Walter Roman  
PLACER on Mastodon Cr, Circle  
dist, Yukon Riv reg, doser-hydraulic, Au

**LUNDSTROM & STOUT**  
Chickoo  
Gen Mgr: Elmo Stout  
PLACER on Napoleon Cr,  
hydraulic-doser, Au

**LYMAN & ACHESON**  
Crooked Creek  
Partners: Robert F Lyman &  
Richard W Acheson  
DONLIN CR PLACERS, 20 mi N of  
Crooked Cr, doser-dragline-  
hydraulic, Au

**MADDEN, LYMAN H**  
Box 661, Nome  
PLACER on Garfield Cr, 100 mi N  
of Nome, hydraulic-doser, Au  
Idle

**MAPHIS, PAUL S**  
Shaw & Maphis, 1015-17th St  
Edmonds, Wash  
PLACER on Dutch Cr, Council  
dist, Seward Penin reg,  
doser, Au

**MARTIN, G B**  
Box 662, Fairbanks  
PLACER on Banner Cr,  
hydraulic-doser, Au

**MARTIN & MARTIN MNG CO**  
Box 662, Fairbanks  
Pres & Gen Mgr: A I Martin  
PEDRO MINE, DISCOVERY CLAIM,  
Pedro Cr, hydraulic-doser, Au  
Supt: G B Martin  
Engr: A B Martin

**MARTINSEN, OLAF**  
Teller  
PLACER on Gold Run Cr, Port  
Clarence dist, shovel-in, Au

**MARVEL CREEK MNG CO**  
Aniak  
Gen Mgr: J C Awe  
MARVEL CR MINE, dragline-doser-  
hydraulic, Au  
Prod: 1,000 yds

**MAURER, ERNEST**  
Box 728, Fairbanks  
FIRST CHANCE CR MINE, open  
pit and placer, Au

**MC CARTHY, ELLSWORTH**  
Fairbanks  
PLACER on Wade Cr, 40-Mile  
dist, shovel-in, Au

**McFARLAND, I C**  
Ophir  
PLACER on Little Cr, Innoko  
dist, Au

**McGEE, L**  
636 Lindley Way, Reno, Nev  
PLACER on Sullivan Cr, Hot  
Springs dist, nonfloat washing  
pl, Au

**McIVER, WALLACE**  
Council  
PLACER on Crooked Cr,  
Council Bluff dist, Au

**McMAHAN, C H**  
Box 1814, Palmer  
PLACER on Albert Cr, Nelchina  
dist, doser, Au

**MEATH, LARRY**  
Fairbanks  
PLACER on Wade Cr, 40-Mile  
dist, shovel-in, Au

**MELDRUM, WM**  
Chicken  
NO 1, above Discovery Claim on  
Chicken Cr, 40-Mile dist, open  
pit and placer, Au

**MIDDLE FORK MNG CO**  
803 Arctic Bldg, Seattle, Wash  
Pres: H E Cleveland  
PLACER on Gulkana, Au  
Gen Mgr: J F Malony  
Engr: M W Jasper  
Under devel

**MICKEL, JOSEPH**  
Nome  
PLACER #6, above Discovery on  
Kougarok dist, Seward Penin reg,  
shovel-in, Au

**MILLER, FRANK J**  
Box 614, Fairbanks  
PLACER on Sheep Cr, Koyukuk  
dist, Yukon Riv reg, shovel-in, Au

**MILLIGAN, C F**  
Council  
PLACER on Ophir Cr, Council  
Bluff dist, hydraulic, Au

**MISCOVICH BROS**  
Box 736, Fairbanks  
PLACER on Timber Cr, Ruby  
dist, Yukon Riv reg, dragline-  
doser-hydraulic, Au

**MORELOCK MNG CO**  
Tanana  
PLACER on Rosa Cr, Melozitna  
dist, Yukon Riv reg, doser-  
hydraulic  
(See R M Fenton)

**MT KIMBALL CONS CO**  
Slate Creek via Gulkana  
PLACER on Slate Cr, Chistochina  
dist, dragline-doser-hydraulic, Au  
(Leased from Slate Cr Gold Placers)

**MUNZ, WILLIAM S**  
Nome  
PLACER on Rock Cr, Council  
Bluff dist, Au

**MYRTLE CREEK MNG CO**  
911 American Bldg, Seattle, Wash  
Partners: F H Molitor and  
Repo Est  
PLACER OPR, Box 766, Fairbanks,  
on Myrtle Cr, 200 mi N of Fairbanks,  
dragline-doser, Au, Ag

**NASS-KASS-OLSEN MINE**  
Haycock  
MINE at Dime Cr, Koyuk, drift, Au  
Under devel

**NATIVE BISMUTH, INC**  
Box 267, Nome  
Pres & Gen Mgr: O E Margraf  
VP: D M Russell  
CHARLEY CR BISMUTH MINE, 35 mi  
N of Nome, underground, Bi, Bi2S3, Au  
Under devel

**NAUDTS, CASIMIR**  
Ophir  
PLACER on Yonker Cr, Innoko  
dist, shovel-in opr, Au

**NECK, V E**  
Wiseman  
PLACER on Myrtle Cr, Koyukuk  
dist, Yukon Riv reg, shovel-in, Au

**NELSON, NELS**  
Council  
PLACER on Melsing & Ophir Cr,  
Council Bluff dist, Au

**NESLAND & WHITE**  
Wiseman  
PLACER on Vermont Cr, Koyukuk  
dist, Yukon Riv reg, dragline-  
doser, Au

**NELSON, WALLACE**  
Haycock  
PLACER on Sweepstake Cr,  
Koyuk dist, Au

**NEWLAN, JAMES**  
Box 1170, Fairbanks  
PLACER on Pedro Cr, Au

**NEW YORK-ALASKA GOLD  
DREDG CORP**  
1616 Smith Tower, Seattle, Wash  
Pres & Man Dir: J K Crowdy  
VP: G G C King  
Sec: Mark Mathewson  
Treas: Fannie Barley  
Purch Agt: L E Robbins  
NEW YORK-ALASKA MINE, 60 mi  
NE of Bethel, placer, 2 dredges,  
dragline, Au  
Res Mgr: Wm H Rice  
Asst Mgr: M F Bailey  
Elec Engr: Clarence Clark  
(See Wash and East Listings)

**NIEMI, WAYNE J**  
Box 1791, Mountain View  
PLACER on Niukluk Riv,  
Council Bluff dist

**NIUKLUK MNG CO**  
Council  
PLACER on Niukluk Riv,  
Council Bluff dist

**NORTH AMERICAN DREDG CO**  
Flat  
Owner: Alex Mathieson  
PLACER at Flat, Iditarod dist,  
2,500 yd bucketline, dredge, Au

**NORTHERN TIN CO**  
c/o Wien Airlines, Nome or  
539 E 89th St, Seattle 5, Wash  
Pres: Axel Palmgren  
VP: Andrew O Olson  
Gen Mgr & Sec: George Ramstad  
Asst Gen Mgr & Treas: A Wm Ramstad  
Purch Agt: A Wm Ramstad  
PLACER OPR, Buck Cr, 120 mi NW  
of Nome, Sn, Au  
Mine Supt: George Ramstad

**NORTH FORK DREDG CO**  
Nome  
Owner: P L Reader  
HARRIS CR MINE, 100 mi N of  
Nome, bucketline, placer, Au  
Idle  
(Leased by Mrs A D Peterson)

**NOVATNEY, MR & MRS R A**  
Box 1841, Juneau  
Pres & Gen Mgr: R A Novatney  
Sec-Treas: Dorothy Novatney  
MILLER LEDGE & LODGE MINES,  
Box 1617 Ketchikan, surface, placer  
Mine Engr: Harry Townsend  
Under devel

**O'LEARY & CO**  
Nome  
PLACER on Bluestone Riv,  
Port Clarence dist

**OLIVE CREEK MINES**  
Box 552, Fairbanks  
Gen Mgr: Carl Parker  
PLACER on Olive Cr, 80 mi NW of  
Fairbanks, dragline-doser, Au, Ag

**OLSEN, SEWARD**  
Wiseman  
PLACER on Crevice Cr, Koyukuk  
dist, Au

**OSTNES, LARS & CO**  
Fortuna Ledge  
Mgr: Lars Ostnes  
PLACER on Willow Cr, Marshall  
dist, Yukon Riv reg, dragline-  
doser-hydraulic, Au

**P & H MINING CO**  
Box 462, Fairbanks  
Partners: F D Parker, J W Raymond,  
F O Hopkins  
P R & H PLACER on Deadwood Cr,  
Circle dist, dragline-doser, nonfloat,  
Au, Ag

**PETERSON, ANDREW**  
Nome  
PLACER on Iron Cr, Nome dist, Au

**PILGRIM, EARL R & CO**  
Box 1896, Fairbanks  
Gen Mgr: Earl R Pilgrim  
STAMPEDE MINE, 110 air mi SW of  
Fairbanks, surface, Sb  
STAMPEDE GRAV MILL, 30-ton

**PIONEER MNG CO**  
c/o J H Pierce, Rampart  
PLACER on Hoosier Cr, dragline-  
doser, nonfloat washing pl, Au

**PITTS, E H**  
Big Lake  
LAKE CR PLACERS, Big Lake,  
hydraulic, Au, Ag

**PORTER, WALLACE**  
Haycock  
PLACER on Bear Cr, Au

**PRICE, STAN**  
Windham Bay  
PLACER, 1/4 mi from float head  
of deep water, hydraulic-doser, Au, Zr

**PRINCE CR MNG CO**  
Flat  
Owner: Harry Agoff  
PLACER on Prince Cr, Iditarod  
dist, Yukon Riv reg, hydraulic, Au  
Idle

**PRINGLE, A W**  
Hot Springs  
MINE on Rhode Island Cr, doser-  
hydraulic, Au

**PURDY, FRED & ARTHUR**  
Chicken  
PLACER on Myers Fork, 40-Mi  
dist, Yukon Riv reg, doser-hydraulic

**PURKEYPILE, I W**  
Box 572, Fairbanks  
PLACER on Tozimoran Cr, Melozitna  
dist, Yukon Riv reg, drilling on  
tin placer prospect

**QUAIL CR MNG CO**  
172 Hall St, Fairbanks  
Co-owner: Willie Redig  
PLACER on Quail Cr, Rampart  
Yukon Riv reg, doser-hydraulic, Au

**QUIGLEY, E W**  
Solomon  
PLACER at Solomon, Cape  
Nome, hydraulic, Au

**RADAK, JOHN**  
Livengood  
PLACER on Ruth Cr, Tolovana  
dist, hydraulic, Au

**RAINBOW MINES**  
Nome  
Partners: Frank H Whaley &  
Sterling A Montague  
MINE, 90 mi N of Nome,  
placer, Au, Ag  
Under devel

**RASSMUS, PAUL**  
Box 398, Nome  
PLACER on Quartz Cr, Kougara  
dist, shovel-in, Au

**RASSMUSSEN, W**  
Fairbanks  
PLACER on Big Cr, Chandalar  
dist, Au

**RENSHAW, A L**  
Box 1875, Anchorage  
GOLD CORD MINE, Willow Cr  
dist, lode, Au

**REPO, ARVI**  
Wiseman  
PLACER on Myrtle Cr, Koyuk  
dist, doser-hydraulic, Au

**RILEY, J E INVEST CO**  
Flat  
Partner: Thomas Jensen  
PLACER on Otter Cr, near Flat  
hydraulic, dredge, Au  
Under devel

**ROBINSON, GEORGE P**  
Boundary  
PLACER on Wade Cr, 40-Mi dist,  
Yukon Riv reg, Au

**ROCKY MT MNG CO**  
Box 78, Nome  
Partners: May Bale &  
Hugo Lindfors  
PLACER on Christian Cr, Nome  
dist, Seward Penin reg, doser-  
hydraulic, Au, W  
Idle

**ROLANDO, NORMAN**  
821 S Yakima Ave, Tacoma, Wash  
PLACER on Gaem Cr, Council Bluff

**ROSANDER & REED**  
Box 451, Fairbanks  
Pres: T Rosander  
PLACER on Yankee Cr, Innoko  
dist, hydraulic-doser-dragline, Au

**RUPTURED DUCK MINERS**  
Ophir  
PLACER on Ruptured Duck claim,  
Innoko dist, Au

**RYLANDER, SOPHIE**  
Haycock  
PLACER on Sweepstake Cr,  
Koyuk dist, Au

**SANTIAGO-ALASKA  
MINES INC**  
227 Commercial Bldg, Ketchikan  
Pres: R Crowe-Swords  
VP: C R Mc Cale  
Sec-Treas: S B Snell  
MINE, Dolomi, underground, Au  
Mgr: H Tweet  
Engr: W Erickson  
100-TON CYANIDE MILL  
Mgr: W Griffiths  
Under devel

**SAVAGE & MATHESON**  
Ophir  
Gen Mgr: Hugh Matheson  
PLACER on Spruce Cr, hydraulic-  
doser, Au  
Idle

**SAVAGE, PATRICK**  
Flat  
PLACERS on Flat & Willow Cr,  
Iditarod dist, dragline-dosers, Au

**SCHAEFER, RUSSEL E**  
Crooked Creek  
PLACER on 47 Cr, Kuskoquim  
reg, doser-slurice boxes, Au, W

**SCHWAESDALL**  
Fairbanks  
PLACER on Myrtle Cr, V  
Koyukuk dist, Yukon Riv reg, Au

**SCOTT, H. CO**  
RIVER MINE, Hyder dist,  
Idle, 2, Pb  
199-TB MILL  
Idle  
(See 101)

**SHAW & COOK**  
Unsubscribed  
PLACER in Hopeful Gulch, Au

**SILVER BOW MNG CO**  
Box 103, Nome  
COFFEY PLACER, Kougarak  
dist, Au

**SLATE CR GOLD PLACERS**  
Valley  
Owner: J H Elmer  
PLACER on Slate Cr, Chistochina  
dist, Yukon Riv reg, dragline-doz-  
er, Au  
Idle  
(Leased to Mt Kimball Const Co)

**SMITH, FRANK H**  
Wild Lake via Wiseman  
PLACER on Spring Cr, Au

**SNOWBIRD MNG CO, INC**  
Box 1719, Anchorage  
Pres & Gen Mgr: Chris Poulsen  
VP: H A Faroe  
Sec-Treas: Charles J Johnston  
SNOWBIRD MINE, 22 mi N of  
Palmer, underground, Au  
FLOT MILL  
Idle, under devel

**SOURDOUGH DREDG CO**  
Nome  
Partners: Chester Milligan, Jack  
LaCross, H E Janeway  
MINE at Council, bucketline, Au

**SOUTH FORK MNG CO**  
Box 307, Fairbanks  
Owners: Gus Uotila, Victor Nick  
John Ogriz, Elmer Keturi  
MINE in Koyukuk dist, E of Bettles  
dragline, dozer, Au

**SQUAW CR MNG CO**  
c/o Jack Wilkey, Boundary  
PLACER on Squaw Cr, 40-Mi  
dist, dragline-doz-er, Au

**SROUFE, WARD**  
Box 718, Anchorage  
OLD MARRIED TWINS MINE  
Willow Cr dist, lode, Au  
Idle

**STANICH BROS**  
Wiseman  
PLACER on Porcupine Cr, Au

**STANTON, HAROLD**  
Talkeetna  
PLACER on Upper Falls Cr  
Yentna-Cache Cr dist,  
hydraulic, Au  
Idle

**STEEN, HARRY**  
Flat  
PLACER on Julian Cr,  
Iditarod dist, Au  
Idle

**STEOVICH MINE**  
Fairbanks  
Owner: Mike Stepovich  
PLACER on Lower Fish Cr  
(Leased to US Smelting & Ref)

**STRANDBERG & SONS**  
Box 2009, Anchorage  
PLACER on Candle Cr, McGrath  
dist, Kuskokwim reg, bucket-line  
dredge, Au  
DRY LAND DREDGE on Indian Riv,  
Hughes dist, Yukon Riv reg, Au

**STUVER, JULIAN**  
Flat  
PLACER on Happy Cr,  
Iditarod dist, hydraulic, Au

**SUNSET MNG CO**  
Box 1595, Anchorage  
Partner: Jack Neubauer  
OPEN PIT, PLACER, hydraulic,  
2 rats, Au

**SWANSON BROS**  
Haycock  
Partners: Albert & Emil Swanson  
PLACER on Hunter Cr, 4 mi E of  
Rampart, hydraulic-doz-er, Au

**TARASKI, A J**  
Talkeetna  
PLACER on Cache Cr, Yentna dist,  
Cook Inlet-Susitna reg, shovel-in, Au

**TAYLOR CR PLACERS**  
Box 915, Fairbanks  
Partners: Elmer Keturi, Gus  
Uotila, Eugene Uotila, J Ogriz  
PLACER, Sleetmute, dozer-draline, Au

**TERREL, FRED**  
Wiseman  
PLACER on Garnet Cr  
shovel-in, Au

**TIGER TALISMAN PLACER**  
Box 294, Nome  
Gen Mgr: J H Alexander  
250-yd hydraulic, Au, Ag

**TRONSTAD & GOODWICK**  
c/o Ted Tronstad, Box 1015,  
Fairbanks  
PLACER on Dahl Cr Skungnak dist  
hydraulic, Au

**TWEET, N B & SONS**  
Teller  
PLACER on Humbolt Cr, Fairhaven  
dist, hydraulic, Au

**TUCKER, S A**  
Haycock  
PLACER on Sweepstake Cr,  
Koyuk dist, Yukon Riv reg, Au

**UHLER CR MNG CO**  
Box 674, Fairbanks  
Partners: R A Brown, M A  
Straiger, A C Dill, Louie Paur  
UHLER CR MINES, hydraulic-  
dragline-doz-er, Au

**ULEN, E J**  
Wiseman  
PLACER on Nolan Bench,  
Koyukuk dist, hydraulic, Au

**UOTILA & OGRIZ**  
Flat  
Mgr: John Ogriz  
SLATE CR PLACER, Flat, hydraulic-  
dozer, dragline, Au

**U S SMELTING, REFINING &  
MINING CO**

Box 1170, Fairbanks  
VP & Gen Mgr: Alaskan Opr  
J D Crawford  
FAIRBANKS DEPT, 8 gold dredges  
at Fairbanks, 1 gold dredge at  
Chicken Cr  
Mgr: J C Boswick  
Supt. Thawing & Stripping.  
T A Loftus  
Dredge Supt. P H O'Neill  
Cashier. L E Linck  
NOME DEPT, 4 gold dredges  
Mgr: C S Glavinovich  
Cashier. Robt Baldwin  
(See Ariz. Utah, New Mex and  
East listings)

**U S TIN CORP**  
Box 2554, Juneau  
Pres. Kenneth J Kadow  
VPs: F H Furey, A F McIntosh  
Sec. W L Gibbon  
Ch of Bd: H R Fischnaller  
Gen Supt. Paul M Sorensen  
Mech Engr. J M Ferguson  
Purch Agt. J J Gilmour  
LOST RIV TIN MINE, Lost Riv,  
90 mi NW of Nome, underground  
placer, dozer, Sn, W  
Prod: 100 tons  
Mine Supt. Ernie Smith  
Asst Mine Supt. Robt Cunningham  
Mine Engr. Jack Ferguson  
150-TON GRAV MILL  
Mill Supt. M E Tippets  
Asst Mill Supt. John Thunes  
Assayer: Paul Hwang  
SMELTERS at Texas City, Tex  
and New York

**VAN WINDEN, JOHN**  
2-53 E 23rd St, Oakland, Calif  
PLACER on Ready Bullion Cr

**VICTOR CR MNG CO**  
c/o Ivor Carlson, Ophir  
PLACER on Victor Cr, Innoko  
dist, dozer, Au  
Idle

**VIRDEN, E P**  
Fox  
NO 12 MINE above Discovery in  
Fox Gulch, placer, Au

**VURICH, BILLY**  
Box 1496, Fairbanks  
PLACER on Sheep Cr

**WACKWITZ, FRED**  
Box 1595, Fairbanks  
PLACER on Cleary Cr Fairbanks  
dist, shovel-in-Au

**WAGER BROS**  
Box 809, Fairbanks  
PLACER on Gold King Cr, Au

**WALSH, M J**  
Nome  
PLACER on Mascot Gulch, Au  
Idle  
(Leased to Noonan & Whitmore)

**WARWICK MINES**  
Box 807, Fairbanks  
Gen Mgr. Andy Warwick  
Gen Supt. W M Warwick  
Acct. E M Warwick  
PLACER on Gertrude Cr, 2 mi NE  
of Livengood, hydraulic-doz-er Au  
GRAV MILL

**WATSON, B B**  
Cape Yakataga  
BEACH PLACER, Yakataga dist,  
shovel-in, Au

**WEATHERELL, GEORGE H**  
Talkeetna  
PLACER on Gold Cr Yentna-  
Cache Cr dist, Au

**WEAVER, VERNON**  
Chicken  
PLACER on 40-Mi Riv Au

**WEBB, H L & CO**  
Box 68, Fairbanks  
DRIFT MINE at Chandalar Au  
Under devel

**WEBFOOT MNG & MLG CO**  
400 New World Life Bldg,  
Seattle, Wash  
Pres. J M McDonald  
WEBFOOT MINE, Palmer  
underground, Au  
Idle

**WEINARD, FRED**  
Candle  
PLACER on Jump Cr, Fairhaven  
dist, Seward Penin reg, dragline-  
dozer, Au  
(See Jump Cr mines)

**WEISNER, IRA**  
Fairbanks  
PLACER on Hoosier Rampart  
dist, shovel-in, Au

**WETTACK, SHELTON**  
431 S Grand Ave, Los Angeles  
PLACER on Long & Nolan Cr  
Ruby dist, Au

**WHITEHEAD, FRED**  
Chicken  
PLACER on Chicken Cr, 40-Mi  
dist, Yukon Riv reg, dragline-  
dozer-hydraulic, Au

**WICKSTROM & CO**  
Fairbanks  
PLACER on Gilmore Cr  
dragline-doz-er, Au

**WILBUR CR MINES**  
Livengood  
PLACER on Wilbur Cr  
Tolovana dist, Au

**WILDT, FRED**  
Box 163, Fairbanks  
PLACER on Homestake Cr,  
shovel-in, Au

**WILKINSON, R R**  
16540 Aurora St, Seattle, Wash  
PLACER on Miller Cr, Circle  
dist, nonfloat washing pl, Au

**WILLIAMS MNG CO**  
Box 1190, Fairbanks  
PLACER on Gilmore Cr dragline-  
dozer, Au

**WILSON CR MNG CO**  
Anchorage  
Pres: W N Curdy  
Dir: H C Bennett

MINE at Elephant Gulch, Au, Ag  
Gen Mgr: A J Erickson  
Purch Agt: A J Erickson  
Idle

**WINDERS, J S**  
Haycock  
PLACER on Sweepstake Cr,  
Koyuk dist, Au

**WIRUM BROS**  
Box 481, Nome  
PLACER on Nookluk Riv,  
Kougarak dist, dragline-doz-er, Au

**WITHROW, AL**  
Bettles Field  
PLACE OPR on Koyukuk Riv, Au

**WOLF CR MNG CO**  
Box 141, Fairbanks  
Pres: Andrew Anderson  
Gen Mgr: Norman Gustafson  
PLACER, dragline-doz-er-hydraulic  
Supt: Mannie Olson  
Under devel

**WREN, WASKEN, WOLFE**  
Dillingham  
PROSPECT LODE at MAR

**WREN-WASKEN-WOLFE**  
Dillingham  
PROSPECT LODE at Marsh Mt near  
Dillingham, Bristol By dist, Bristol  
Bay reg, trenching, Hg

**XAVIER, HENRY & SOLVEIG**  
8005 Pacific Ave, Tacoma, Wash  
PLACER on Goldrun Cr, Fairhaven  
dist, shovel-in, Au

**YUKON CORP**  
Box 1835, Fairbanks  
Pres. W H Coffman  
Gen Mgr: C A Sherman  
Mgr: G H Porter  
Purch Agt: J Leger  
PLACER MINES: Standard Miller,  
Tatalanika, Eva Cr, Hatchison Cr,  
Placer, Royal Flush, Gilmore  
Dome, & Fox Bar, Au, Ag, Pb  
BUCKET DREDGE at Fox Bar  
Supt. C E Smith  
Asst Supt. E C Hulbert  
Foreman. J Strickland  
FLOT MILL at Gilmore Dome  
Supt. M J Newby  
Asst Supt. I H Robertson  
Foreman. A G Huber  
Idle

**YUKON MNG CO**  
539 E 89th St, Seattle 5, Wash  
MINE, Kako Lndg, Au  
Idle

**YUKON PLACER MNG CO**  
Box 1108, Fairbanks  
Partners: C F Herbert, Earl  
Ellingen, L J Stampe, Glen  
Franklin, Harold Schmidt  
60-MILE OPR, placer at Glacier  
Cr, hydraulic-doz-er & 4-ft dredge

**ZAISER, CLARENCE**  
Ruby  
PLACER on Spruce Cr, Ruby dist, Au

**ZAISER, LEONARD**  
Ruby  
PLACER on Timber Cr,  
drift, Au

**ZENDA GOLD MNG CO**  
MINE nr Cape Cr,  
tin dredging (summers)  
(See Nevada)

**ZIMMERMAN MINES**  
Fairbanks  
Owner: A A Zimmerman  
PLACERS on Independence Cr nr  
Millerhouse, hydraulic-dragline, Au

## ARIZONA

**ABE LINCOLN COPPER CO**  
Wickenburg  
MINE, Maricopa Co, Cu  
Mgr: E I Mills



**ABRIL MINE**  
Box 789, Tucson  
MINE, Tombstone, Cochise Co., Zn, Cu  
Mgr: S B Owens

**ADAMS #3 MINE**  
Box 21, Yuma  
Opr: H C Hudson  
MINE, Yuma Co., Ag, Pb

**AJAX MINE**  
Superior  
MINE in Pinal Co., Pb, Zn, Ag  
Mgr: Ralph Pomeroy  
Under devel

**AKREN MINES**  
2207 N 24th St, Phoenix  
Pres: J A Akren  
Gen Mgr: Fred Jenkins  
PIONEER MINE, 20 mi E of  
Florence, underground & surface  
Au, Ag, Cu, Pb  
Under devel  
Assay: Charles Deal

**ALEXANDER, T W &  
CLARK, ERNEST**  
Box 299, Prescott  
US GROUP Yavapai Co., Pb, Zn

**ALEXANDER, VERDIN**  
Box 142, Humbolt  
LOOKOUT MINE, 2 1/2 mi W of  
Humbolt on the Silver Belt vein,  
Au, Ag, Pb, Zn  
Owner: Rabie Estate  
MT ELLIOT MINE, 7 mi W of  
Humbolt, Au, Ag, Pb  
Gen Mgr: Robert Tucker  
Under devel

**ALKEY MINE**  
Tombstone  
Owner: E B Escapule  
Pb, Ag  
Mgr: Jeff Humphrys  
Under devel

**ALLEY & HODGE**  
Box 153, Ajo  
Gen Mgr: G T Alley  
#5 MINE, 3 mi W of Ajo, Cu, Au, Ag  
Idle

**ALLISON MINE**  
Box 748, Tucson  
Oprs: Maurice Hedderman &  
Olin B Dodd  
MINE, Pima Co., Cu

**ALTO MINE**  
Patagonia  
Pb, Cu, Ag  
Mgr: Ray Bell

**ALTUDA MINES INC**  
Gila Bend  
Pres: R E Wampler  
MINE, Maricopa Co., Au, Ag, Cu  
Mgr: D C Gills

**ALVARADO, LUIS**  
Hayden  
ALVARADO CLAIMS #1-3  
Gila Co., Cu  
Under devel

**AMERICAN MINE**  
Miami  
Cu, Ag  
Mgr: Jack Quinn  
Under devel

**AMERICAN SMELTING &  
REFINING CO**  
WESTERN MNG DEPT SW DIV  
813 Valley Nat'l Bldg, Tucson  
Mgr: T A Snedden  
Ch Geol: L K Wilson  
TRENCH UNIT, Patagonia,  
underground, Pb, An  
Supt: D R Jameson  
200-TON FLOT MILL  
HAYDEN PLANT Hayden, 1200-ton  
smelt & conv, Cu  
Supt: F J Downey  
SW ORE PURCH OFFICE  
810 Valley Nat'l Bldg, Tucson  
Mgr: Reed P Welch  
SILVER BELL UNIT, Box 2229  
Tucson, Pima Co., Cu  
(See Colo, Calif, Ida, Mont, New Mex,  
Utah, Wash, Central, and East)

**AMERICAN ASBESTOS  
CEMENT CORP**  
Box 3022, Globe  
Pres: Ammon R Smith

Sec: McClean Stock  
Aud: Don E Williams  
Agr: George W Kohl  
AMERICAN ASBESTOS MINE,  
90 mi N of Globe, chrysotile  
asbestos, underground  
25-TON MILL, crushing &  
screening  
Mine & Mill Mgr: M Stockman  
Engr: L J Brewer

**APACHE ASBESTOS MINES INC**  
Box 983, Globe  
Pres: L S Rayes  
VP: Barry DeRose  
Dir: B B Gilledge  
Gen Mgr & Supt: H P Brewer  
APACHE ASBESTOS MINE, 50 mi NW  
of Globe, underground, asbestos  
MILL under construction

**APACHE LAKE #1-7 MINES**  
Box 1802, Globe  
Owners: Elmer Rose, Glynn  
Van Cleve & Paul Van Cleve  
MINE, Maricopa Co., Ag, Cu

**APACHE VANADIUM CORP**  
180 E Bailey St, Globe  
MINE, underground, Pb, Au, Ag  
Under devel

**ARAVAIPA EXT MINE**  
Box 51, Klondyke  
Opr: J F Rydbom  
MINE, Graham Co., Ag, Pb

**ARI-MICH MINES, INC**  
Box 701, Prescott  
Pres & Gen Mgr: C W Gabrielson, Sr  
VP: Harold Gates  
Sec: Lynwood Webb  
Gen Supt: C W Gabrielson, Jr  
CATOCTIN MINE, 12 mi SW of  
Prescott, underground, Ag, Au, Pb, Zn, Cu  
Under devel

**ARIZONA BARITE**  
Box 926, Mesa  
Pres: George O'Leary  
Gen Mgr: W F Paine  
Dir: E H Robertson  
MINE, underground, barite  
Foreman: Larry Mathis  
Assay: Thomas Clay

**ARIZONA COMMERCIAL  
MINE GROUP**  
Box 100, Miami  
Owner: Miami Copper Co  
MINE, Gila Co., Cu  
Gen Mgr: R W Hughes

**ARIZONA CONS GOLD &  
COPPER MINES CO**  
Florence  
Mgr: J F Johnson, 122 S Mesa  
Blvd, Mesa  
Idle

**ARIZONA COPPER  
MINES INC**  
Oracle  
Pres: J E Moewinkle  
Gen Mgr: W R Shanklin  
MINES, 20 mi N of Tucson, Cu  
Supt: Louis Steckradt  
Idle

**ARIZONA GYPSUM CO**  
Winkelman  
Mgr: J M Champie  
MINE in Pinal Co. gypsum

**ARIZONA EASTERN  
FLUORSPAR CORP**  
Box 146, Duncan  
Pres & Gen Mgr: Leo A Deatrick  
VP: Paul Kouri  
Sec: Fred Hasehorst  
Met & Gen Supt: Cooper Shapley  
LONESTAR FLUORSPAR MINE,  
near Benson  
POLLY ANN FLUORSPAR MINE  
near Duncan  
Prod: 25 tons  
Mine Supt: Morris Albertoli  
Mine Foreman: B F Billingsley  
50-TON FLOT-HV MEDIA MILL  
near Duncan  
Mill Supt: Cooper Shapley, Jr

**ARIZONA-KLONDYKE MINE**  
Dos Cabezas  
Au, Ag, Pb  
Mgr: Robert Hyde  
Under devel

**ARIZONA METALS CO**  
Box 1266, Kingman  
Pres & Gen Mgr: R R Langley  
SUMMIT ALPHA MINES, Au, Ag,  
Cu, Pb, Zn

**ARIZONA MNG CORP**  
Box 163, Chloride  
Sec: F H Luhrs, 17 John St,  
New York 38, N Y  
SAMOA GROUP, Mohave Co.,  
Au, Ag, Pb, Zn, Cu

**ARIZONA PORTAL  
CEMENT CO**  
Rillito  
Mgr: A L McCall  
MINE, MILL, Pima Co., limestone

**ASH PEAK LEASE**  
Box 208, Duncan  
COMMERCE & SHAMROCK MINES  
Ag  
Prod: 100 tons  
Gen Mgr: Howard Mottier

**ASSOC MNG CO**  
Parker  
Pres: A C Bureger  
RIO VISTA, BILLY MACK, SUE,  
CAPILANO, MAMMON & LION  
HILL MINES, Cu, Au  
Under devel  
Gen Dir: A O Loquist

**ATHLETIC MNG CO**  
Box 792, Saftord  
Pres: Raymond F Orr  
VP & Gen Mgr: Harvie L Horton  
Sec: Ander K Orr  
HEAD CENTER & IRON CAP MINES,  
12 mi NW of Klondyke, underground,  
Zn, Pb, Cu, Ag, Au  
Prod: 100 tons  
Mine Supt: A Bosworth  
Mine Foreman: Elton Kidd  
150-TON FLOT MILL, Klondyke  
Mill Supt: Borden Burleson

**AUSTIN, L C**  
7951 E Hershey Ave.,  
San Gabriel, Calif  
ARIDZONE MINE, Mohave Co., Zn, Pb

**BAGDAD COPPER CORP**  
Bagdad  
Pres: J C Lincoln  
Gen Mgr: Ernest R Dickie  
Metal: E S Howell  
Elec Engr: W D Deacon  
Mech Engr: N H Redfield  
Purch Agt: J W Schultheis  
MINE 70 mi W of Prescott  
underground, Cu, Mo  
Prod: 3,500 tons  
Mine Supt: Olaf Hondrum  
Mine Foreman: D S Pike  
Mine Engr: H T Stewart  
3,500-TON FLOT MILL, Bagdad  
Mill Supt: E G Green  
Asst Mill Supt: Al Smith  
Mill Foreman: Gaylen Guest  
H Mullins, H Vega  
Assay: J B Campbell

**B S & K MINING CO**  
2-2 S 1st Ave, Phoenix  
Pres & Gen Mgr: A M Kalaf  
VP: William W Simon  
Sec: Lee Newsom  
Geol: Seton S Williams  
ATLAS MINE, Silver Bell  
mining dist, 19 mi SW of Red Rock,  
underground, Zn, Cu  
Under devel  
Prod: 100 tons  
125-TON FLOT MILL

**BANNER MNG CO**  
550 First Nat'l Bank Bldg,  
Oklahoma City, Okla  
Gen Mgr: A B Bowman, Sahuarita  
MINERAL HILL MINE, Pima Co., Cu  
Under devel  
Supt: E E Bray

**BARCLAY, ROSS**  
Washington Camp  
STELLA LOUISE MINE, Santa  
Cruz Co., underground, Zn, Pb, Cu

**BARTMUS, BROCK & DUKE**  
Kingman  
Owners: Peter Bartmus, Jr,  
Richard Brock, Stanley Duke,  
Earl Duke  
SIXTY-THREE MINE, 15 mi from  
Kingman, underground, Ag

**BATTLE SPRINGS ASBESTOS  
CO**  
Globe  
Mgr: Arthur Houser  
MINES in Gila Co., underground,  
asbestos

**BEAR CANYON MINE**  
Globe  
MINE in Gila Co., underground,  
asbestos  
(Leased to R G Robertson)

**BEARWELLS MINE**  
733 S Stone, Tucson  
Opr: Landis J W  
MINE, Pima Co., Ag, Cu  
Under devel

**BENDER MINE**  
OPEN PIT MINE, 5 mi S of  
Patagonia, Mn  
(Leased to Rupert Ayerle & Son,  
River Store, Nogales)

**BIG CHIEF GROUP**  
Box 145, Prescott  
Owners: Fred L. Robinson &  
William Lamborn  
MINE, Yavapai Co., Au, Ag, Pb  
Under devel

**BIG SPAR MINE**  
Wickenburg  
FELDSPAR MINE, Maricopa Co.  
Mgr: J A Campbell

**BIRTHDAY MINE**  
Oracle  
Mgr: Carl B Lancaster  
MINE, Pinal Co., Cu, Au, Ag, Pb

**BLACK BEAR MINE**  
Sella  
Mgr: Allen V Geer  
MINE, Pima Co., Mn

**BLACK CANYON COPPER CO  
INC**  
Box 1531, Phoenix  
Pres: J W England, Jr  
VP: Jerome Kaye  
Sec-Treas: Ben Silverman  
KAY COPPER MINE, Backspring  
underground shaft, Cu, Zn, Au, Ag  
Idle  
(Leased by Chieftain Mng Corp)

**BLACK CHIEF MINE**  
Bouse  
Owner: D C Townsend  
Mn  
(Leased to McElvaney & Harrison)

**BLACK DIAMOND**  
Phoenix  
Owner: F A Sittion  
MINE, Arty Peak dist, Mn  
Under devel

**BLACK JACK GROUP**  
Rock Springs  
Owner: Jack Manifee  
MINES, Yavapai Co., Cu  
Under devel

**BLACK PEARL MNG CO**  
Box 248, Bagdad  
Pres & Gen Mgr: E A Schulz  
VP: L K Landahl  
Sec-Treas: J H Cazier  
BLACK PEARL MINE, 18 mi NE  
of Bagdad, underground, Wg  
Prod: 30 tons  
Mine Supt: K K Puumala  
50-TON GRAV MILL

**BLACK MESA CLAIM**  
Box 1685, Yuma  
Lessee: Alan C Madden  
MINE, Yuma Co., Cu

**BLACK NUGGET #1 MINE**  
Opr: Atlas Mng Co  
c/o R L Wilson,  
Detroit, Mich  
MINE, Maricopa Co., Mn

**BLACK QUEEN MINE**  
Agua  
Mgr: Fred Seifert  
MINE, Maricopa Co., Mn

**BLOO NELLEY (UNIDA)  
MINE**  
Box 458, Wickenburg  
Opr: N S Oberan  
MINE, Yavapai Co., Cu

**BLUEJAY, WEST COAST,  
GOODLUCK & JUDGE MINES**  
Box 5, Cherry via Dewey  
Owners: Thomas Sutchell &  
Robert Ayres  
MINES, Yavapai Co., Cu  
Under devel

**BOMBOY GROUP**  
Box 264, Superior  
MINE, Pinal Co., Au, Ag, Cu

**BONANZA MINE**  
Washington Camp  
Mgr: C S Elayer  
MINE in Santa Cruz Co., Zn, Pb, Mn

**BONANZA MNG CO**  
Wenden  
Pres & Gen Mgr: R R MacDonald  
VP: Rolland Moore  
Sec-Treas: Kathryn M Moore  
Purch Agt: Jack E Brown  
Geol: Burton Rose

**BOWEN MINE**, 7 mi NE of  
Wickenburg, Au  
Under devel  
Supt: Marvin G Milner

**BOSTON MINE**  
Seal Valley  
Mgr: John M Johnson  
MINE in Va

**BOSTON MINE**  
Seal Valley  
Mgr: John M Johnson  
MINE in Yavapai Co, Cu, Pb, Zn

**BOTT, GEORGE H**  
Box 15  
BOTT MINES, Aravaipa dist,  
Kingdome, Zn, Pb, Ag, Au  
Idle

**BOYD & FORTNER**  
Wickenburg  
Partners: Bert Boyd & B H Fortner  
LUCKY MICA #1 MINE, 11 mi S of  
Wickenburg, spodumene, lepidolite

**BRAATHEN, ARNT T**  
Box 22, Amado  
BRAATHEN GROUP, Santa Cruz  
Co, Zn, Pb  
Idle

**BRADY, L R**  
49 W McArthur St, Tucson  
HILL TOP CLAIM, 7 mi E of  
Hayden, Cu, Au, Ag  
Idle

**BROWN, R L**  
Box 1743, Nogales  
KANSAS MINE, Wash Camp, 20 mi S  
of Patagonia, underground, surface  
Prod: 15 tons  
Supt: Alex De La Ossa  
Engr: J Nunez

**BUCKEYE MICA CO**  
Box 415, Buckeye  
Pres: Walter L Tocco  
Sec: H G Smith  
BUCKEYE MINE, 4 1/2 mi S of  
Buckeye

**PEEPLISS VALLEY MINE**, 12 mi  
NW of Peepliss Valley, under-  
ground, surface, sericite,  
muscovite, Be  
Supt: Robert Burns  
100-TON GRAV MILL  
Foreman: Wayne Watts

**BULL SPRINGS #1-4 MINES**  
Patagonia  
Owner: Ernest Valenzuela  
Lessees: V C McCutchan, I Wolf,  
B H Callahan  
MINES, Santa Cruz Co, Ag, Pb, Zn

**BULLARD GROUP**  
Box 121, Congress  
Owner: Bullard Estate  
c/o Charles O Mathews, Mgr  
MINE, Yavapai Co, Au, Cu  
(Leased to Roller & Firestone,  
Box 703, Wickenburg)

**BURNEY MINES, INC**  
2-22 N Balboa Ave, Tucson  
Pres & Gen Mgr: R A Burney  
Sec-Treas: Lilla Burney  
STOVE LID & AMPHITHEATER  
MINES, underground, surface  
FLOT MILL

**BY CHANCE MINE**  
c/o Col Frank Childs, Ajo  
Opr: Von R Calloway  
MINE, Pima Co, Ag, Cu

**C & B MINE**  
2433 W Belmont Ave, Phoenix  
Opr: C F Moores  
MINE, Gila Co, Ag, Pb, Zn

**CACTUS & IRISH BOY  
MINES**  
706 16th St, Douglas  
Owners: K C Moon &  
A J Hutchinson  
MINE, Cochise Co, Ag, Pb

**CALARI MNG CO**  
406 Kress Bldg,  
Long Beach 12, Calif  
Pres & Gen Mgr: L F Albrecht  
Sec: C M Smith  
Gen Supt: V H LeMay  
RUTH MINE, Box 941, Prescott,  
6 mi S of Prescott, underground,  
Zn, Pb, Cu, Ag, Au  
Idle

**CALIF STEEL PROD CO**  
Richmond, Calif  
Treas: C F Fannin  
SILVER BELL OF COLUMBIA  
MINES, Pinal Co, Pb  
(Leased to United Ariz Mines)

**CAMP B MNG CO**  
Box 392, Wickenburg  
Pres & Mgr: Emmett Nutter  
VPs: John Perkins, L C Miller  
Sec-Treas: Hollis B Gray  
MONTE CRISTO & HALE GPS,  
11 mi NE of Wickenburg, Au, Cu  
Purch Agt: George Crisswell  
Supt: Edwin Kephart  
Idle

**C A R MINES, INC**  
Box 1052, Kingman  
Pres: S H Reitky  
VP & Gen Mgr: A W Smith  
Sec-Treas: Carroll S Farley  
Purch Agt: A W Smith  
DELA FONTAINE MINE, 14 mi  
N of Kingman, underground,  
Pb, Zn, Ag, Au, idle  
Mine Engr: John J Jordon  
CUPID MINE, 13 mi N of  
Kingman, underground, Ag, Pb, Au,  
idle

**CAMPBELL, S T**  
Box 1841, Prescott  
COLDWATER MINE, Yavapai Co  
Idle

**CARLOTA COPPER CO**  
330 W Latham, Phoenix  
Pres & Gen Mgr: John L Alexander  
CARLOTA MINE, 15 mi W of Miami,  
surface, Cu  
Idle

**CASA GRANDE PERLITE CO**  
Casa Grande  
Pres: C M Vaughn  
VP: Guy Gilbert  
Treas: M C Jensen  
Mill Supt: H H Matchett  
Prod: 48 yds

**CASTLE DOME COPPER  
CO, INC**  
(wholly-owned subsidiary of  
Miami Copper Co)  
CASTLE DOME MINE, Box 100,  
Miami, 10 mi W of Miami, surface, Cu  
Mine Supt: John Gray  
Mine Engr: C B Hostettler  
12 000-TON FLOT MILL  
Mill Supt: R L Montpy  
Assayer: G R Warren  
Mine Foreman: M M Stover  
(See East)

**CASH MINE**  
Prescott  
Mgr: Jack Orr  
MINE in Yavapai Co, Au, Ag, Cu, Pb, Zn

**CEDAR TALISMAN CONS  
MNG CO**  
309 Wilshire Dr, Phoenix  
Pres & Gen Mgr: J W Walters, Jr  
FRENCH LILLY MINE, Cleator,  
underground, Au, Ag, Cu, Zn, Pb  
60-TON FLOT MILL

**CENTRAL EUREKA MNG CO**  
Prescott  
LOMA PRIETA MINE, underground,  
surface, Cu  
Prod: 200 tons  
(See Calif)

**CENTURION MINE**  
2-12 W Adams St, Phoenix  
Owner: S Jane Landfair  
MINE, Cochise Co, Ag, Cu, Zn  
Under devel  
(Leased to Golden Gate Mng Co)

**CHANCE MINE**  
Box 137, Elfrida  
Mgr: J F Rydbaum  
MINE in Cochise Co, underground,  
Pb, Ag  
Under devel

**CHARLESTON LEAD MINES**  
Box 347, Tombstone  
Gen Mgr: C H Sutter  
MARY JO & CHARLESTON MINES,  
7 mi SW of Tombstone, underground,  
Pb  
20-TON GRAV WASH PL

**CHEMI-COTE PERLITE CORP**  
Box 5187, Phoenix or  
Box 454, Dallas, Texas  
Pres & Gen Mgr: O T Ball  
VP: L L Young  
Sec: Mrs Fay Young MacDonald  
Gen Supt & Mech Engr: Travis P  
Lane  
MARY T & SANDY #2 MINES, 3 mi  
SW of Superior, surface, perlite  
Prod: 100 tons

**CHILITO MINE GROUP**  
Box 1065, Hayden  
Owner: B C Velasco  
MINE, Gila Co, Cu

**CHILSON MINES**  
Box 2779, Tucson

Mgr: Richard E Chilson  
KING-IN-EXILE MINE, 18 mi E  
of Sahuarita, underground, Cu, Ag  
Prod: 650 tons per month  
Mine Supt: Lauren Van Horn

**CHRISTMAS MINE**  
Cleator  
Owner: C H Turner  
MINE, Yavapai Co, Ag

**CHRISTMAS GIFT MINE**  
Box J, Casa Grande  
Owners: T Manning &  
Benjamin J Drew  
MINE, Pinal Co, Pb

**CLARK, E**  
Miami  
GIBSON MINE, 9 mi SW of  
Miami, underground, Cu

**CLARKE, PHIL J**  
Box 452, Nogales  
BIG STEVE, WHITE OAK &  
ST PATRICK MINES, Santa Cruz  
Co, Ag, Pb  
Under devel  
(Leased to Fred R Brown,  
Box 25, Picacho)

**CLAYTON, W H**  
Mexa  
BISCHANS MINE, Au  
Under devel

**CLIMAX URANIUM CO**  
Window Rock  
Mgr: Joe Weston  
MINE in Navajo Co, U, V

**COBRA #1-4 MINES**  
106 N Cortez St, Prescott  
Owner: P D Hesse  
MI ES, Yavapai Co, Cu  
Under devel

**COHEN TUNGSTEN MINE**  
33 E Madison Ave, Chicago, Ill  
Pres: A G Cohen  
Gen Mgr: F W Clark  
MINE, 14 mi from Wilcox,  
underground, placer

**COLBURN, E A JR**  
Box 153, Congress  
CONGRESS MINE, 3 mi N of  
Congress Jt, underground, Au, Ag, W

**COLORADO RIVER PLACER**  
Box 1533, Globe  
Opr: Irving Ross  
MINE, Yuma Co, Au

**COMPADRE MINE**  
Patagonia  
Mgr: Joe Allen  
MINE in Santa Cruz Co, Pb, Ag  
(See Colo & East)

**COMSTOCK EXT MNG CO**  
408 N 7th Ave, Phoenix  
Pres: John Evans  
Sec: B T Dick  
DOUGHBOY GP MINE, Gila Co, Cu, Zn  
Supt: Tony Trojanovich  
Engr: Henry Nichols  
Under devel

**CONS COPPERMINES CORP**  
Safford  
LONE STAR MINE, 10 mi E  
of Safford  
Under devel  
Supt: John Hope  
(See Nev and East)

**CONS FELDSPAR CORP**  
(See Internat'l Min & Chem Corp)  
Box 229, Kingman  
Gen Mgr: Ed Bone  
OPEN PIT MINE, feldspar, silica, SO<sub>2</sub>  
80-TON GRINDING PL  
Supt: L D Gregory  
Foremen: Paul Hodges & S B  
Wooten  
Assay: E W Koenig  
Purch Agt: Paul Willis

**CONSOL TUNGSTEN MINES,  
INC**  
Bagdad  
Mgr: J M Cobb  
MINE in Yavapai Co, W

**COPPER BELT MINE**  
711 W Broadway, Glendale, Calif  
Owner: W P Balderston  
MINE, 20 mi S of Aguila, Cu  
Under devel

**COPPER BUTTE MNG CO**  
Box N, Ray  
Mgr: C F Mitchell  
COPPER BUTTE MINE, 7 mi W  
of Ray, surface, Cu

**COPPER CAP MNG CO**  
Wickenburg  
MINE, Yavapai Co, Cu

**COPPER CITIES MNG CO**  
Miami  
Mgr: R W Hughes  
MINE in Gila Co, Cu

**COPPER CROWN MINE**  
Kirland  
Owner: John L Solomon  
MINE, Yavapai Co, Cu  
Under devel

**COPPER HILL MNG CO**  
Box 391, Globe  
Pres: T R Black, Box 45,  
Tipp City, Ohio  
Sec & Gen Mgr: L O Goodman  
SUPERIOR & BOSTON MINES,  
4 mi NE of Globe, underground  
Mn, Cu  
Supt: Phil Morse

**COPPER KING MINE**  
Bagdad  
7 mi S of Bagdad, underground,  
Zn, Cu  
(Leased to Scholz & Cazier)

**COPPER KING MINE GP**  
2621 E Adams, Tucson  
Owner: Shorey C Gues  
MINE, Pima Co, Cu

**COPPER MT MINE**  
172 S 3rd St, St George, Utah  
Opr: J E Wulfsen  
MINE, Mohave Co, Cu

**COPPER QUEEN, MOON  
ANCHOR & BIRDSEYE MINES**  
Box 104, Bagdad  
Opr: Valerio Rossi  
MINES, Yavapai Co, Cu

**CORONADO COPPER &  
ZINC CO**  
Dragoon  
REPUBLIC MINE, 6 mi N of  
Dragoon, underground, Zn, Cu  
Mine Mgr: Fred E Gray  
Mine Foreman: Maxwell Daugherty  
Mine Engr: Joe Sierakowski  
Geol: Arthur Baker III  
Master Mech: John W Keate  
200-TON FLOT MILL  
Mill Supt & Metall: L D Yundt  
Assayer: W O Hamilton  
(See Calif)

**CORONADO MINES, INC**  
RED MT, BUENA VISTA, GOLDEN  
ROSE & WASHINGTON MINES,  
Box 659, Nogales, underground,  
Cu, Mo, W, Pb, Au, Ag, pyrites  
Foreman: Howard Pittenger  
Idle

**CORONATION MNG CO, INC**  
Box 337, House  
Pres & Gen Mgr: Charles Milton  
VP: L A Linebaugh  
Sec-Treas: H S Schneider  
CORONATION MINES #1-74,  
Au, Ag, Cu  
Idle

**CORRIGADORE MINE**  
Oracle  
Mgr: H E Brannon  
MINE in Pima Co, W

**COYOTE HOLE MINE**  
Sells  
TUNGSTEN MINE in Pima Co

**CRISS CROSS MINE**  
Box 514, Nogales Star Rt,  
Sahuarita  
Owner: Charles R Todd  
MINE, Pima Co, Ag, Pb, Zn  
Under devel

**CROOK & WESTERN  
MINES**  
1320 W Missouri, Phoenix  
Owner: Mrs Roma Tomlinson  
Opr: Mill Decker, 26 W Madison,  
Phoenix  
MINES, Yavapai Co, Ag, Pb, Zn  
Under devel

**CROWN PT MNG CO**  
Box 691, Globe  
Pres & Gen Mgr: C F Moores  
RAY MINE, 35 mi SW of Globe,  
underground, Pb, Ag  
Engr: R E Douglas  
FLOT GRAV MILL  
(Leased to G R French)

**CRYSTAL GOLD & GOLD  
EYE PLACER**  
Box 28, Quartzsite, Calif  
Owner: Lehre H Erdman  
MINE, Yuma Co, Au

**CUPEL MINE**  
Box 1052, Kingman  
Owner: A W Smith  
MINE, Mohave Co, Ag, Pb

**CYPRUS MINES CORP**

Bagdad  
Mgr: S A Spellmeyer  
MINE in Yavapai Co, Cu, Zn

**DANENHAUER, MAT & ASSOC**

Clifton  
BLACK ROCK MINE, 2 mi N of  
Clifton, Mn  
Under devel

**DAVIS, DAVIS & KNAPP**

Casa Grande  
COPPER RIBBON & COUNTRY  
BOY CLAIMS, Sheridan mng dist,  
surface, Cu, Au, Ag, U  
Under devel

**DE LA OSSA & R L BROWN**

Box 182, Tombstone  
DOUBLE STANDARD MINE, Santa  
Cruz Co, underground, Zn, Pb, Cu  
EMPIRE MINE, underground,  
Zn, Pb, Cu  
DAVID ALLEN MINE, Santa Cruz,  
Ag, Pb, Zn

**DETROIT MINE GP**

Kingman  
Owner: I M George  
Lessees: K N Hart & Adrian  
Skinner  
MINE, Mohave Co, Ag, Cu

**DOGTOWN MINE**

Sahuarita  
Mgr: Frank Hill  
MINE in Pima Co, Ag, Pb, Au, Cu

**DRAGON ZINC MINE**

Owners: Flora C Hubbard,  
1201 St Mary's Rd, Tucson &  
Mrs W G Swart, 1712 High St,  
Alameda, Calif  
MINE, Cochise Co, Zn  
(Leased to C B Higgins, Box 156,  
Benson)

**DUTCH FLAT GP**

Yucca  
Owners: Birt J Jackson &  
Ducan Vaal'ducan  
MINE, Mohave Co, W  
Under devel

**DYE & BATHRICK**

Box 1069, Kingman  
Gen Mgr: R L Dye  
Purch Agt: J H Bathrick  
BORIANA MINE, Yucca, 18 mi  
NE of Yucca, dumps, WO, Cu, Ag  
Prod: 30 tons  
(Leased to J A Allen & Dan K  
Harper, Kingman)  
COPPER WORLD MINE, Yucca,  
Ag, Zn, Cu, Pb  
(Leased to Mt States Mng Co)  
75-TON GRAV-FLOT MILL  
Mill Supt: R L Dye  
Mill Foreman: C C Strouse

**THE EAGLE-PICHER CO,**

MNG & SMELTING DIV  
VP & Gen Mgr: Elmer Isern  
WESTERN OPR: Box 231, Tucson  
Mgr: Grover J Dugg  
XAVIER MINE, Zn, Pb  
300-TON MILL, Sahuarita  
Idle  
(See Central)

**EAST SIDE MINE**

Yarnell  
Owner: James Cooley  
MINE, Yavapai Co, Au  
Under devel

**ELSORO #1-7 & CORA**

MINES  
Box 31, Bisbee  
Owner: Edward Festerling  
MINE, Cochise Co, Ag, Pb  
Under devel

**EMERALD ISLE MINE**

Kingman  
Owner: C F Weeks  
MINE in Mohave Co, Cu  
400-TON LEACHING PL  
Idle

**EMPEROR-DUCHESS**

MINES CO, INC  
Fairfield, Idaho  
Pres: Ben Lasswell  
VP: Chas Fuller  
Sec Treas: Roland Baldwin  
Dir: Laurence Green, Sells  
MINE at Sells, Cu, Ag  
Supt: Myrl Green  
Under devel

**EMPIRE MINE**

Washington Camp  
Mgr: W E Isaman  
MINE in Santa Cruz Co, Zn, Pb, Cu

**ESCAPULE, JOE M**

Box 243, Tomatone

GARNET #1-12, Cochise Co, dev  
QUARTZITE #1-5, under  
STATE OF MAINE GP, under devel

**ESCONDIDO-LEXINGTON**

MINES  
Box 261, Superior  
Owner: Mrs Mary Rieder  
Oprs: Leo Blackburn, A H Putts  
MINES, Cochise Co, Ag, Pb, Zn

**F H & R MNG CO**

Arivaca  
MINE in Pima Co, W  
Mgr: Harold Ferrin

**FELDSPAR MINE**

Kingman  
Mgr: Amos Hodges  
MINE in Mohave Co, feldspar

**FERNSTROM OPR CO**

Box 51, Ruby Star Rt, Tucson  
Oprs: Ray & Lester Fernstrom  
FERNSTROM CLAIMS, N of  
Dragon, W  
LAS GUJAS MINE, 6 mi NW of  
Arivaca, W, Au  
Mgr: Harold Ferrin  
FERNSTROM MILL, Tucson

**FINLEY, R C**

195 E Mesquite St, Globe  
BOBTAIL GP, Gila Co,  
Cu, Ag, Pb, Zn, W, idle  
GIBSON MINE, Cu

**FOUR BAGGER MINE**

195 E Mesquite St, Globe  
Owner: Ross C Finley  
MINE, Gila Co, Cu

**FOUR X MNG CO**

c/o Ralph P Smith, Hollen  
Hotel, Lordsburg, New Mex  
BLUE MT MINE, nr Portal, Pb

**FOURTH OF JULY MINE**

Duncan  
Fluorapat, CaF<sub>2</sub>  
Under devel

**FREE AMERICA MINE**

c/o L W Racine, Box 128, Globe  
Owners: Racine & Brockway  
MINE, Gila Co, Cu

**GALBRAITH, ROY**

435 N Robson, Mesa  
TREASURE CHEST MINE,  
Maricopa Co  
Under devel

**GALLAGHER VANADIUM &**

RARE MINERALS CORP  
Box 77, Tombstone  
Mgr: J B Gallagher  
BRONKOW MINE, near Tombstone,  
underground, Pb, V, Au, Ag  
(Leased to Vogel Mng Co)

**GERTIE L CLAIM**

Box 79, Ruby Star Rt, Tucson  
Owner: C L Jarnagin  
MINE, Pinal Co, Au

**GIACOMA BROS**

Box 546, Tombstone  
Mgr: A P Giacomina  
COSTELLO

**GIACOMA BROS**

Box 546, Tombstone  
Mgr: A P Giacomina  
COSTELLO GP, Au

**GIL-TED MNG CO**

Agula  
Mgr: V D Standley  
MINE in Maricopa Co, Mn

**GLOBE-LOS ANGELES**

MNG CO  
Globe  
Pres: Henry Mulryan  
CANADIAN GP, 40 mi N of  
Globe, asbestos

**GLOBE-MIAMI COPPER**

ZINC CORP  
610 Heard Bldg, Phoenix  
Pres: James U Fagan  
Sec-Treas: Russell A Wright  
Gen Supt: Reed E Roberts  
IRENE MINE, 2 mi N of Globe,  
underground  
Under devel

**GOLD DYKE #1 & 2**

Box 701, Salome  
Opr: George Campbell  
MINE, Yuma Co, Au  
Under devel

**GOLD NUGGET MINE**

Box 784, Mesa  
Opr: Kenneth W Hebrer  
MINE, Maricopa Co, Au

**GOLD NUGGET MINE**

Salome  
Owner: W A Simpson  
MINE, Yuma Co, Au, Ag, Cu

**GOLDEN CROWN MNG CO**

Crown King  
Pres & Gen Mgr: Ralph G Brown  
COUGAR, LYDIA & TIGER MINES,  
Underground, Pb, Zn, Cu, Ag, Au  
Supt: R M King  
BROWN GP, c/o Arthur Still,  
Box 1512, Prescott, Au, Ag, Pb, Zn  
Under devel

**GOLDEN GATE TRUST &**

MNG CO  
Box 458, Wickenburg  
Pres: N S Oberan  
GOLDEN GATE & FRANKLIN D  
MINES, Yavapai Co, Cu

**GOLDEN HOPE #2**

(MEXICAN) MINE  
Box 730, Kingman  
Owner: J H Beauchamp  
MINE, Mohave Co, Ag, Pb, Zn  
Under devel

**GOLDFIELD MINES, INC**

Mesa  
Owner: Hugh Nichols  
Mgr: T R Russell  
GOLDFIELD MINE, NE of Mesa,  
surface, Au  
125-TON CYANIDE MILL  
(Leased to Hebrer & Landis)

**GOMEZ, CY & MANUEL**

Moranci  
BELL GROUP, Greenlee Co, Au, Ag  
Idle  
(Leased from Dover Copper Co)

**GOOD ENOUGH TUNGSTEN**

CORP  
850 S 4th Ave, Tucson  
Pres: Guido A Aliprandini  
Sec & Purch Agt: J Arthur Zappia  
GOOD ENOUGH MINE, Las Gujas  
Mng dist, 10 mi N of Arivaca,  
underground, W, WO  
Prod: 10 tons  
50-TON GRAV MILL

**GRACE MINES**

Portal  
Pres: M E Schad  
VP: Archie Spain  
Opr: J L Schad  
GRACE MINES, underground  
Under devel

**GRAND REEF MINE**

Box 8, Yucca  
Owner: A E Knowland  
MINE, Mohave Co, Au, W  
Under devel

**GRAND VIEW MINE**

5393 Santa Margarita,  
San Diego 14, Calif  
Owner: W C Best  
MINE, Pinal Co, Au

**GRANITE BUTTE MINE**

Chloride  
Owners: Elmer, Harold &  
Robert Thorsten  
MINE, Ag, Pb  
Under devel

**GRANNIS, FRANK &**

PATTERSON, C G  
Chloride  
ATWATER KENT GP, Zn, Pb

**GREY EAGLE MINE**

Rt 1, Box 250, Miami  
Owners: M West & A G McClain  
MINE, Pinal Co, Pb, Zn

**GRIFFITH, BEN**

675 S Duncan Ave,  
Los Angeles 22, Calif  
McCRACKEN MT GP, 67 mi S  
of Kingman, underground, Pb, Ag  
FLOT MILL

**GRISOMMS INC**

Winkelman  
Mgr: M C Grissom  
MINE in Gila Co, Pb

**GROZIER, THOMAS F**

Box 787, Kingman  
AMERICAN NETTIE MINE,  
Mohave Co  
Under devel

**GULLEDGE, GRADY B &**

ASSOC  
266 N Pine St (Box 606), Globe  
Gen Mgr: Grady B Gulledge  
Asst Gen Mgr: G L Noel  
Gen Supt: J B Williamson  
PINE TOP ASBESTOS MINE, 40 mi  
NE of Globe, underground, asbestos  
Prod: 5 tons  
Mine Supt: J B Williamson  
GLOBE CUSTOM ASBESTOS MILL

**GYPSUM MINE**

Winkelman  
Mgr: J S Tillman

**H & H MINING CO**

Yucca  
Gen Mgr: Earl Heaton  
MARY NEVADA MINE, underground  
Ag, Pb, Au  
Foreman: Sheldon Hagg  
+0-YD GRAV OPR  
Supt: Ray Farr

**H & M MINING CO**

Crown King  
Partners: C F Moore  
F G Holmes  
GLADIATOR MINE, 2 mi NW  
Crown King, underground, Au, Ag,  
Cu, Pb, Zn  
Foreman: Harrison  
20-TON FLOT MILL  
Idle

**HAGEY, J H & J D**

Box 205, Chloride  
J & J CLAIMS, 10 mi E of Chloride  
underground, Au, Ag, Zn, Pb, Cu  
D & H GP, 10 mi E of Chloride  
Zn, Pb, Ag, Au, Cu, Mn  
Idle

**HAPPY JEAN GP**

Bouse  
Opr: D T Roberts  
Owner: George Bernard  
MINE, Yuma Co, Au, Ag, Cu  
Under devel

**HELVETIA MNG CO**

Box 928, Tucson  
Owner: R B Blankenship  
42 CLAIMS, underground & surface,  
Ag, Cu, W, Mo, dev  
OLD DICK MINE (Leased to  
R E Chilson)

**HENDERSON, MRS A S**

Box 27, Patagonia  
MINERAL MINE, 12 mi N of  
Patagonia, underground, Pb, Zn, Ag, Cu  
under devel  
(Leased to R G Moreno)  
STAR #1, 2 & 3 MINES, 12 mi N of  
Patagonia, surface, Mn, idle

**HERRAN, JAMES JR**

Box 6-8, Superior  
LAKE SUPERIOR & ARIZ GP,  
Pinal Co, Au, Cu

**HIGGINS, F L**

Box 84, Wilcox  
SCENICA MINE nr Cochise  
Stronghold, underground, Au, Pb, Ag

**HIGH LINE MINE**

Rt 1, Box 250, Miami  
Opr: A G McLain  
MINE, Gila Co, Cu

**HILL, FRANK & EDWARDS,**

GEORGE  
Box 8A, Ruby Star Rt, Tucson  
DOGTOWN MINE, 22 mi SW of  
Tucson, underground, Ag, Pb, Zn  
Under devel

**HILLSIDE MNG & MLG CO**

Bagdad  
Pres: J C Lincoln  
VP & Gen Mgr: Ernest R Duxie  
Asst Gen Mgr: E G Green  
Sec: George W Colville  
Gen Supt & Metal: Roscoe Duncan  
Mech Engr: R C Bogart  
HILLSIDE MINE, 10 mi N of Bagdad,  
underground, W, idle  
TUNGSTON MINE, 12 mi N of  
Bagdad, underground, W, under  
devel  
Prod: 150 tons  
Mine Supt: Edward Chenard  
Mine Engr: R C Bogart  
300-TON GRAV-FLOT MILL  
Mill Supt: Roscoe Duncan  
Mill Foreman: B L Solper  
Assayer: J B Campbell

**HILTON, E P**

Box 1308, Tucson  
STATE OF MAINE & LONE MT MINES  
38 mi E of Tucson, underground, Pb,  
Ag, Au, Zn  
15-TON GRAV MILL  
Idle

**HILLTOP MINE**

Salome  
Owner: John L Holt  
MINE, Yuma Co, Ag, Pb

**HOGVAL MINE CLAIMS**

c/o Preston Suit, Florence  
Owner: Hogval Estate  
MINE, Gila Co, Cu  
(Leased to Frank Hedworth,  
Winkelman)



**HOLLAND & DUQUESNE MINES**

Washington Camp  
Mgr: E W McFarland  
MINES in Santa Cruz Co., Pb, Zn, Cu

**HOLY CROSS MINE**

1302 E. Grande Rd., Tucson  
Opr: J. Bud Woolsey  
MINE, Pinal Co., Ag, Cu

**HOOPER & CO**

Globe  
Mgr: K. L. Hoopes  
MINE, MILL in Gila Co.,  
limestone

**HULL MINE, CHIEF OF THE  
DOME, CASTLE DOME,  
DIANA**

Box 188, Yuma  
Owner: J. S. Mahood  
MINES, Yuma Co., Ag, Pb

**HURLBUT, W C**

Greenville via Sonita  
SILVER LEAD & QUEBEC MINES,  
117 mi W of Greenville,  
underground  
Under devel

**HUSTED, WORD & DAVIS**

Box 589, Globe  
MORNING STAR #4 MINE,  
Stanley dist., Cu  
Idle

**INFANT MINE**

Cleator  
Owner: Tom Cleator  
MINE, Yavapai Co., Ag, Pb  
Under devel

**INDIAN SPRINGS MINE**

Box 1005, Globe  
Gen Mgr: H. R. Scott  
Sec: R. D. Mich.  
Opr: William A. Scott  
Purch Agt: H. R. Scott  
MINE, 14 mi S of Globe,  
underground, asbestos  
Under devel  
Mine Engr: William A. Scott

**INSPIRATION CONSOL  
COPPER CO**

Inspiration  
VP: R. S. Newlin  
VP & Gen Mgr: P. D. Honeyman  
Asst Gen Mgr: H. C. Weed  
Mech Engr: A. H. Neal  
Purch Agt: A. H. Neal  
Asst Purch Agt: E. F. Dolin  
INSPIRATION MINE, Globe-Miami  
dist., underground, placer, Cu  
Prod: 13,000 tons  
Mine Supt: J. R. Watts  
Asst Mine Supt: B. B. Whitney  
LEACHING PLANT  
Supt: C. B. Kettering  
Asst Supt: W. D. Schrader  
(See East)

**INTERLIT MIN & CHEM CORP**

(See Consol Feldspar)  
(See Calif., Colo., Mont., New Mex.,  
So Dak., Wyo., Central, South & East)

**INTERNAT'L MNG EXCH**

c/o J. B. Johnson Jr., Box 418,  
Glendale  
MYSTERY MINE, Yavapai Co., Idle  
GOLDEN ANCHOR GP

**INTERNAT'L SMELTING &  
REFINING CO**

Miami  
Supt: Harold Faord  
Ore Buyer: Clifton E. Smith  
3,000-TON CUSTOM CU SMELTER

**ISBELL CONST CO**

Mgr: R. S. Isbell  
RAY OPEN PIT, Ray, Pinal Co., Cu  
SILVER BELL MINE, Marana,  
Pima Co., Cu

**JAMES MINE**

Box 415, Bisbee  
W  
(Leased to F. A. Montgomery)

**JAQUAYS MNG CORP**

1215 S 19th Ave, Phoenix  
Pres & Gen Mgr: D. W. Jaquays  
VP: G. A. Jaquays  
Sec: Ethelyn Jaquays  
Asst Gen Mgr: Leroy Wood  
REGAL & CANADIAN MINES,  
Box 328, Globe, 47 mi N of  
Globe, underground, asbestos  
Prod: 50 tons  
Mine Supt: Ralph Henderson  
Asst Mine Supt: Frank Romero  
50-TON GRAY MILL  
Mnt Supt: W. Meyers

**JOHNSON MNG CO**

55 N. Matlock St., Mesa  
Mgr: A. H. Johnson  
BLACK COPPER GP, Pinal Co., Cu

**JOHNSON, ROSE H**

Box 561, Salome  
HARQUA HALA EXT GP, Yuma Co  
Idle

**KANSAS MINE**

Washington Camp  
Mgr: R. L. Brown  
MINE in Santa Cruz Co., Zn, Pb, Ag

**KELLY PLACER &  
KELLY LODGE**

Hereford  
Owner: William C. King  
MINE, Cochise Co.  
Under devel

**KENNECOTT COPPER CORP  
RAY MINES DIV**

Ray  
Gen Mgr: A. P. Morris  
Asst Gen Mgr: H. J. O'Carroll  
Div Controller: C. L. Billing  
Metal: D. V. Galbiati  
Elec Engr: Ray Johnson  
Geol: Otis Clark  
Safety Engr: Max Shaker  
Asst Purch Agt: N. E. Guyer  
RAY MINES, 85 mi E of Phoenix,  
underground, surface, Cu  
Prod: 15,000 tons  
Mine Supt: J. C. Van De Water  
Gen Pit Foreman: B. C. Lansing  
Undergrd Mine, Asst Supt:  
A. B. Robb  
Asst Mech Supt: A. L. Dickerson  
Chief Elec: L. J. Miller  
Gen Surf Foreman: J. F. Patton  
Mine Foreman: E. Jenkin  
Stope Engr: K. W. Foote  
15,000-TON FLOT MILL, Hayden,  
23 mi SE of Ray  
Mill Supt: J. L. Stevens  
Asst Mill Supt: G. P. Sewell  
Mill Foreman: W. H. Steinke,  
O. R. Pratt, F. A. Meyer  
Assayers: S. Quesada, R. Monroy  
Plant Engr: R. C. Johnson  
Master Mech: P. M. Hoskins  
Chief Elec: C. C. Fanning  
(See Nev., New Mex., Utah & East)

**KENNEDY, JAMES O**

Box 9, Kirkland  
PORTLAND GP, Yavapai Co., Au

**KICK BACK MINE**

Box 892, Casa Grande  
Opr: Paul Hinshaw  
MINE, Pinal Co., Cu

**KING, OLD DICK &  
SOUTHERN CROSS MINES**

Sahuarita  
Mgr: R. E. Chilson  
MINES in Pima Co., Cu

**KING-AINSWORTH MINES**

Portal  
Oprs: Cochise Metal Prod Co  
MINES, Cochise Co., Ag, Pb

**KIRKPATRICK, W H**

St. Michael Hotel, Prescott  
BODIE MINE, Yavapai Co., Pb

**KNIGHT, SAM MNG LEASE  
INC**

Winkelman  
Pres: Frank P. Knight, Jr.  
Sec: Roland H. Knight  
Treas: Sam Knight  
CHRISTMAN MINE, 9 mi N of  
Winkelman, underground, Cu  
Prod: 50 tons

**KNOX ARIZ COPPER MNG  
CORP**

468 Laurel, St. Louis, Mo  
Pres & Gen Mgr: W. A. Knox, Sr.  
VP: Nolen McLean  
Sec: W. A. Knox, Jr.  
COPPER MT MINE, Ajo, 25 mi SW  
of Ajo, underground, Cu, Au, Ag  
Under devel

**KYLE ASBESTOS MINES OF  
ARIZ, INC**

Globe  
Owner: Roger V. Kyle  
Underground, chrysotile asbestos  
Prod: 2 to 5 tons

**LAST CHANCE #1 & 2**

Box 38, Yucca  
Owner: Earl Heath  
MINE, Mohave Co., Cu

**LEAD & ZINC CORP OF  
AMER**

Box 606, Globe  
Pres: Grady B. Gullledge  
VP: J. B. Williamson  
Gen Mgr: Ray Pointer  
BEN HUR MINE, 15 mi NW of  
Kiondyke, underground, Pb, Zn, Cu, Ag

**LEON, MILTON**

208 Wright Bldg., Tulsa 3, Okla  
UNCLE SAM MINE, Box 659,

Nogales, 5 mi NE of Nogales,  
underground, Au, Ag, Pb  
Under devel

**LITTLE DOMES MNG CO**

Pres: Fred T. Smith, 430 S.  
Broadway, Los Angeles, Calif  
SONORA GROUP, Yuma Co., dev

**LOMELINO MINERAL DEV CO**

Tombstone  
Asst Mgr: Robert LeFever  
100-TON FLOT MILL

**LONE STAR MINES, INC**

702 10th Ave, Safford  
Pres: J. P. Merrill  
VP: Albert Spalding  
Sec: Paul Merrill  
LONE STAR MINE, 10 mi NE of  
Safford, underground  
Idle

**LOOPBORO, L C**

Box 53, Ruby Star Rt., Tucson  
QUEEN MINE, sells  
underground, Ag, Pb

**LOOKOUT MINE**

Box 21, Yuma  
Opr: H. C. Hudson  
MINE, Yuma Co., Au, Ag

**LORRAINE MINE**

Globe  
Opr: Joseph Marchese  
MINE, Pinal Co., Cu

**LUCKY NO 2**

Lordsburg, New Mexico  
FLUORSPAR MINE, Greenlee Co.  
(Leased to Forrest & McCabe)

**LUCKY SWEDEN MINE**

Box 2231, Warren  
Owner: George Erickson  
MINE, 6 mi E of Lowell,  
underground  
Under devel

**LYNX CREEK PLACER**

Walker Rt., Prescott  
Opr: Jack Redmon  
MINE, Yavapai Co., Au

**MAGMA COPPER CO**

Box 37, Superior  
Pres: A. J. McNab  
VP & Gen Mgr: W. P. Goss  
Asst Gen Mgr: Darrell Gardner  
VP & Treas: H. E. Dodge  
Sec: Roy Bonebrake  
Metal: F. T. Davis  
Geol: Hugh Steele  
Mech Engr: Howard Johnston  
Safety Engr: Dave Orr  
Purch Agt: G. Sarver  
Auditor: W. J. Swanson  
MAGMA MINE, N of Superior,  
underground, Cu, Ag, Au  
Prod: 1,000 tons  
Mine Supt: J. F. Buchanan  
Asst Mine Supt: John Draeger  
Actg Mine Supt: C. B. Foraker  
Mine Foreman: Cecil Tomerlin  
Mine Engr: J. F. Flanagan  
1,500-TON FLOT MILL, Superior  
Mill Supt: H. J. Rex  
Mill Foreman: John Fry  
Assayer: W. W. Simon  
20,000-TON REVERB SMELTER,  
Superior  
Supt: E. J. Caldwell  
Asst Supt: Claude Soule

**MAGIC MINE**

Wenden  
Au  
Oprs: E. J. Johnson, T. E. Warren

**MAGMA KING MANGANESE  
MINE**

Superior  
MINE in Pinal Co., Mn, Ag  
Mgr: Ralph Pomeroy

**MAIN, G F L**

621 Curley, Prescott  
REBEL MINE, 6 mi SW of Humbolt,  
Au, Ag, Pb, Zn  
Mgr: Bill Snyder

**MANGANESE KING MNG SYN**

Box 335, Bouse  
Pres: F. N. Doyle  
VP & Sec: Harrison Doyle  
Gen Mgr: L. A. Aplington  
MANGANESE KING MINE, 35 mi NE  
of Bouse, surface  
Under devel

**MANHATTAN CONSOL MINES  
DEV CO**

Box 351, Tonopah, Nevada  
Pres: J. Fred McColloch  
Sec: Nick J. Barbarich  
SCRIBNER MINE, Box 101,  
Elfrida, 25 mi NW of Elfrida,  
underground, Pb, Ag, Au

**Prod: 5 tons**

Under devel  
Mine Supt: John W. Parsley  
OLD DICK MINE, Bagdad, 2 mi S  
of Bagdad, underground, Zn, Cu, Ag, Pb  
Prod: 100 tons  
Under devel  
Mine Supt: K. L. Erickson  
Mine Foreman: Pat E. Sayre  
(See Nevada)

**MARY G MINE**

109 N. Park Ave., Tucson  
Owner: Alice J. Worley  
Pb, Ag, Cu, Ha  
Under devel

**MAYDAY MNG CO**

c/o J. H. Patrick,  
Box 201, Parker  
MINE, Yuma Co., Cu

**MAYHEW MNG CO**

Yuma  
Mgr: Jim Mayhew  
BIG JIM MINE, Castle Dome  
dist., Pb, Ag, Au, Zn, Cu  
Idle

**MC FARLAND & HULLINGER  
CO**

Bagdad  
Owners: F. G. McFarland & S. R.  
Hullinger, Salt Lake City, Utah  
BOSTON-ARIZ MINE, near Skull  
Valley, Cu, Pb, Zn  
OLD DICK MINE, Bagdad, Zn, Cu, Pb  
Prod: 2000 tons monthly  
Mgr: K. L. Erickson  
LITHIUM CLAIMS near Wickenburg,  
dev  
Foreman: Bert Boyd

**MC CARRELL, C A**

Sanders  
SANDERS MINE, Apache Co.,  
surface, bentonite  
Prod: 14,000 tons monthly

**MERLO MICA MNG CO**

Box 111, Kingman  
Gen Mgr: H. A. Lackey  
MICA HILL MINE, Moss Canyon,  
surface, mica  
Supt: B. L. Gamel  
Devel

**METEATE ASBESTOS CORP**

Box 51, Joplin, Mo  
Pres: Charles Robert Neal  
VP & Gen Mgr: Jack L. Neal  
Asst Gen Mgr: Charles Ross Neal  
Sec: R. C. McNabb  
Purch Agt: Jack L. Neal  
APACHE MINE, Box 1506, Globe,  
16 mi NE of Globe, underground,  
asbestos  
Prod: 5 tons  
Mine Supt: Jack L. Neal  
Mine Foreman: Ira Talley  
MILL, 8 tons cobbed ore per day  
Mill Supt: Charles Ross Neal  
CHIRICAHUA GP, San Carlos  
Apache reservation

**METEOR SILICA CORP**

Box 191, Winslow  
Pres: W. A. Mowbray, Phoenix  
MINE, 16 mi W of Winslow  
Mgr: Earl E. Pomeroy

**MIAMI COPPER CO**

Box 190, Miami  
Gen Mgr: R. W. Hughes  
Asst Gen Mgr: B. H. Coil  
Gen Supt: J. W. Still  
Metal: C. H. Curtis  
Elec Engr: A. T. Nutterblad  
Geol: J. Foxwell  
Mech Engr: J. J. Luchessa  
Safety Engr: W. R. Collier  
Purch Agt: F. L. Bishop  
MIAMI MINE, Miami, under-  
ground, Cu, Mo  
Prod: 13,000 tons  
Mine Supt: W. F. Distler  
Mine Foreman: E. G. Williams  
Mine Engr: J. R. Fletcher  
18,000-TON FLOT MILL  
Mill Supt: J. W. Smith  
Assayer: G. R. Warren  
(See East)

**MICKY DOLAN MINE**

Wenden  
Mgr: Albert Erickson  
MINE in Yuma Co., Cu

**MIDCONTINENT MNG CO**

Benson  
Mgr: Wiley Cochran  
LONE STAR MINE in Cochise Co.,  
CaP<sub>2</sub>

**MIDNIGHT & MIDNIGHT  
EXT #1 MINES**

Box 1022, Nogales  
Owners: Val & Margaret Casan  
MINES, Santa Cruz Co., Ag, Pb  
Under devel

**MINERAL MT M & M CO**

330 E 14th St, Tempe  
Pres: C M Miller  
VP & Gen Mgr: L L Boyer  
GOSHAM-HALL GP, 20 mi SW of  
Superior, Pb, Ag, Zn, underground  
dev  
WOODPECKER MINE, Pinal Co.,  
Au, Ag, Pb, dev  
SILVER QUEEN GP, 23 mi SW of  
Superior, Pb, Ag, idle

**MITCHELL, J D**

Box 54, Sasabe Star Rt, Tucson  
SILVER SHIELD MINE, Pima Co, Ag  
Mgr: John A Falk  
Under devel

**MOLINAR-METCALF MINE**

Box 772, Clifton  
Mgr: C E Stevens  
MINE in Greenlee Co, Cu

**MONEY METALS MINE**

Globe  
MINE, Gila Co, Zn, Ag, Au  
Mgr: Louis Winn

**MONICA GROUP**

Box 27, Yarnell  
Owners: C D Howe &  
John L Riggins  
MINE, Yavapai Co, Au

**MONTANA MINE**

Ruby  
Owner: Hugo W Miller, Nogales  
MINE, underground, Au, Ag, Cu, Pb  
Zn

**MONTANA-ARIZONA MNG CO**

Gila Bend  
Cu, Ag  
Mgr: A Lukeville

**MORENO, RAMON S**

Box 553, Patagonia  
MINERAL WEST MINE, 14 mi NW  
of Patagonia, underground, Ag, Zn, Cu  
Prod: 1/2 ton

**MORNING STAR #1-S**

327 S Pleasant St, Prescott  
Owner: Charles L Felippi  
MINE, Yavapai Co, Au, Ag  
Under devel

**MT STATES METALS CO**

Yucca  
Pres & Gen Mgr: G A Freeman  
COPPER WORLD MINE, 15 mi NE  
of Yucca, underground, Cu, Zn  
COPPER WORLD MILL, 75 tons  
(Leased from Dye & Bathrick)

**MUDBANK MINE GP**

Box 572, Nogales  
Owner: Florence Z Oliver  
MINES, Santa Cruz Co, Ag, Pb, Zn

**NASH MINES**

Patagonia  
Pres: James Nash, Austin, Tex  
Gen Mgr: D C Gilbert  
ANNE, ESTELLA LOUISE, MAINE,  
CALIF & SMUGGLER CLAIMS,  
Zn, Pb, Cu, Ag  
Prod: 850 tons  
HOLLAND MINE (Leased to E W  
McFarland)  
KANSAS MINE (Leased to R L  
Brown)

**NAVAJO URANIUM CO**

Box 608, Cortez, Colo  
Pres: R O Dunaney, Jr  
VP & Gen Mgr: G R Kennedy  
Sec Treas: Edmund Key III  
Met: Oscar Fischer  
COVE MINES, Apache Co,  
underground, surface, U, V  
Prod: 60 tons  
Supt: Wilbur Jannacka  
Foreman: W H Peters  
Engr: Tom Valente  
Shift Boss: Chris H Jones  
SAMPLING PL, Shiprock, N M  
Prod: 300 tons

**NEW LONDON, STORM**

CLOUD, ORIG AND  
BENTON MINES  
c/o Clayton Straub, 1075  
Subway Term Bldg,  
Los Angeles 13, Calif  
Lessees: K N Hart, H M Hansen &  
Adrian Skinner  
MINE, Mohave Co, Ag, Pb, Zn

**NIKAS MNG CO**

Oracle  
Mgr: Harry E Krumlaug  
MINE in Pinal Co, W

**O & R MINING CO**

Patagonia  
Mgr: H P Oswalt  
MINE in Santa Cruz Co, Ag, Pb

**OCTAVE (JOKER SHAFT)**

MINE  
31 Milk St, Boston, Mass  
Owner: Oliver A Wyman  
MINE, Yavapai Co, Au  
(Leased to Logan Culp, Congress)

**OLD DOMINION GREY GP**

Box 100, Miami  
Owner: Miami Copper Co  
MINE, Gila Co, Cu

**OLD SOLDIER MINE**

213 N Mt Vernon, Prescott  
Mgr: J Shull  
MINE, Au, Ag, Cu, Pb, Mo  
Under devel

**OLD TIMER MINE**

Box 203, Sells  
Owner: Ernest Rudolph  
MINE, Pima Co, Au, Ag  
Under devel

**OLIVERIO, JOE**

Box 1425, Globe  
RED HILL MINES #1-18,  
Gila Co, Cu

**OLSON, ROBERT M**

Box 1054, Superior  
SILVER KING MINE, Pinal  
Co  
Under devel

**ORO BLANCO MINES**

Box 66, Ruby Star Rt, Tucson  
Gen Mgr: T J Anderson  
ORO BLANCO MINE, 75 mi S of  
Tucson, underground, Au, Ag  
30-TON GRAV MILL

**ORO FLAME MNG CO**

202 N Pleasant St, Prescott  
Mgr: H K Grove  
ORO FLAME & OHIO MINES,  
Yavapai Co, underground, Au, Ag, Pb

**ORR & DICKIE**

Rt 1, Box 390, Prescott  
Partners: Jack Orr & E R Dickie  
CASH MINE, 12 mi S of Prescott,  
Au, Ag, Cu, Pb, Zn  
SENATOR GP, Yavapai Co, Ag, Cu  
(Leased from Phelps Dodge Corp)

**OSBORNE, HARRY M**

Parker  
SIE MINE, 5 mi N of Parker  
underground, Au, Cu  
7-TON MILL  
Idle

**PAUL LIME PLANT**

Paul Spur  
Gen Mgr: Alfred Paul, Jr  
Asst Mgr & Engr: H S Dahlman  
Gen Supt & Purch Agt: John  
Van Hooten  
MINE, 11 mi W of Douglas, lime,  
lime and silica flux, limerock  
aggregate  
Prod: 700 tons  
Foreman: Lorenzo Rodriguez  
LIME KILNS, rotary kilns,  
crushing & grinding and  
screening plant

**PERRY, RAYMOND**

Box 32, Vicksburg  
SURPRISE MINE, Yuma Co, Pb, Zn  
Under devel

**PETERSON, KARL**

Patagonia  
MOWRY & HUACHACA GPS,  
near Patagonia, underground, Pb, Ag

**PHELPS DODGE CORP**

WESTERN OPR  
Douglas  
WESTERN GEN OFFICES  
Gen Mgr: C R Kusell  
Asst Gen Mgr: W C Lawson  
Office Mgr: H E Moore  
Dir, Labor Rel: W J Uren  
Chief Engr: H V Kruse  
Gen Aud: John Kuhn  
Asst Gen Pur Agt: K A Ables  
West Traffic Agt: A C Bacon  
MORENCI BR, Morenci, mines,  
concentrator & smelter  
Mgr: L M Barker  
Gen Supt: W E Fensli  
NEW CORNELIA BR, Ajo, mines,  
concentrator & smelter  
Mgr: J B Pullen  
Gen Supt: A T Barr  
COPPER QUEEN BR, Bisbee,  
mines & concentrator  
Mgr: C E Mills  
Supt: M G Fowler  
UNITED VERDE BR, mines at  
Jerome, concentrator at Clarkdale  
Mine Supt: H D Clark  
PHELPS DODGE MERC CO, stores  
at Bisbee, Douglas, Morenci,  
Clifton

**Gen Mgr: R W Hagan, Douglas**

NEW CORNELIA COOP MERC CO:  
store at Ajo  
Gen Mgr: R W Hagan, Douglas  
(See New Mex, Tex, East)

**PHILLIPS ASBESTOS MINE**

Globe  
Mgr: Guy Phillips  
MINE in Gila Co, asbestos

**PLATA RICA #1 & 2**

Box 574, Tombstone  
Owners: E B Walker &  
C A Blake  
MINE, Cochise Co, Ag, Pb  
Under devel

**PIEDMONT MINES, INC**

Portal  
Gen Mgr: L K Disfenderfer  
HILLTOP MINE, underground, Pb, Zn  
HILLTOP MILL  
(Leased to Amer Zinc, Lead &  
Smelting Co)

**PIMA MNG CO**

Box 7005, Tucson  
Gen Mgr: E D Spaulding  
ALPHA MINE, 18 mi SW of Tucson,  
underground, Cu  
Mine Supt: R E Thurmond  
Under devel

**PIMA ROCK & SAND**

Ajo Way, Tucson  
Pres: K D Lieberman  
Engr: Louis Green  
LOUDON MINE, 14 mi E of  
Sahuarita, adit, Cu  
ELGIN MINE, Cu

**PINAL & ASTEX**

c/o Joseph E Valentine,  
Box 1482, Miami  
Opr: Valentine & Bustamonte  
MINE, Gila Co, Ag, Pb, Zn

**PROMPTOR MINE**

Tomstone  
Owner: John P Giacomina  
Mn

**PUMICE CORP OF AMERICA**

314 W Carey St N, Las Vegas, Nev  
Mgr: B L Gamel  
MINE & MILL, Pima Co, mica

**RACINE, L &**

BROCKWAY, A  
Box 128, Globe  
RAMBO & RESCUE MINES,  
Miami dist, Gila Co, Ag

**RAINBOW MINE**

Heber  
Owner: J G Patrick  
MINE, surface, Mn

**RAINEY, P J**

834 W Thomas Rd, Phoenix  
BULLDOZER MINE, Shuarita,  
underground, Cu  
Under devel

**RAMSEY, JOHN L**

Vicksburg  
R & A MINE, Pimosa dist, Ag, Pb  
Under devel

**RANDOLPH MINES**

Box 248, Superior  
Owner: George N Lobb  
MINES, Pinal Co, Cu  
Under devel

**RAWHIDE MINE**

Box 948, Kingman  
Owner: Clyde C Cofor  
MINE, Mohave Co, Ag, Pb

**RAY LEAD SILVER MINE**

Globe  
Mgr: Charles Moores  
MINE in Gila Co, Pb, Ag

**REBEL MINE**

Humboldt  
Mgr: Bill Snyder  
MINE in Yavapai Co, Pb, Zn, Au, Ag, Cu

**RED BLUFF MINE**

Globe  
Mgr: Karl Larsen  
MINE in Gila Co, U

**RED CLOUD MINE**

Box 1068, Prescott  
Owner: M L Lynch  
Opr: E R Dickie, Bagdad  
MINE, Yavapai Co, Cu

**REED, WILLIAM H**

Klondyke  
ABE REED MINE, 14 mi NW of  
Klondyke, underground, Pb, Zn, Ag  
Under devel

**REED & REED**

Box 1246, Kingman  
Partners: George Reed &  
J W Reed  
BANNER & FOUNTAIN REED MINE,  
14 mi N of Kingman, underground  
Zn, Ag, Au, Pb, Cu  
Prod: 2 tons  
Under devel

**REILLY LOBE**

Box 301, Sells  
Opr: Howard C Duff  
MINE, Pima Co, Ag

**RENNER, JAMES**

Box 142, Cave Creek  
RED ROVER MINE, Santa Cruz Co,  
Ag, Cu  
Idle

**REO SILVER KING MNG CO**

Prescott  
Mgr: Nolan H Deary  
MINE in Yavapai Co, Ag, Pb, Zn

**REORG SILVER KING**

DIVIDE MNG CO  
Prescott  
MT UNION MINE, 18 mi S of  
Prescott, underground, Au, Ag, Pb, Zn  
Under devel

**REYMERT EXT SILVER**

MINES  
Box 441, Superior  
REYMERT MINE, Pinal Co,  
underground, Ag  
(Leased to A E Habesont)

**REYNOLDS ALUMINUM CO**

Phoenix  
ALUMINUM EXTRUSION PL  
Prod: 60,000,000 lbs yearly

**REYNOLDS FALLS**

ASBESTOS CO  
Box 1593, Globe  
Partners: George Kohl &  
Charles Kohl  
MINE, 35 mi N of Globe,  
underground, chrysotile,  
asbestos  
Prod: 3-10 tons

**REWARD MINE**

Casa Grande  
MINE, Pinal Co, Cu  
Mgr: O T Manning

**RIO DEL MONTE MINES, INC**

Salome  
Pres & Gen Mgr: O K Gilliam  
VP: Emil Anderson  
Sec-Treas: E V Eckel  
Dir: R G Conan  
RIO DEL MONTE MINE, 4 mi SW  
of Salome, underground, Au, Ag, Cu,  
Pb  
35-TON FLOT MILL  
Under devel

**RIVERSIDE PLACER**

Wickenburg  
Owners: Jos Aros &  
Louis Ramirez

**ROBINETT, DALTON**

Box 501, Kingman  
BULL CANYON MINE, 16 mi E  
of Yucca, surface, W  
Under devel

**ST ANTHONY MNG & DEV CO**

Tiger  
MAMMOTH ST ANTHONY MINE,  
underground, Au, Ag, Cu, Pb, Zn,  
Mo, V  
250-TON FLOT MILL  
SMELTER & LEACHING PL  
Idle

**ST LOUIS MANGANESE CO**

Box 527, Patagonia  
Mgr: O Hogsett  
MINE & GRAV MILL, Mn

**ST LOUIS MINE**

Kingman  
Owner: A T Lietzow  
MINE near Chloride, Pb

**SACRAMENTO MINE**

Groom Cr via Prescott  
Owner: Louis Milner  
MINE, Yavapai Co, Ag, Pb, Zn

**SAN JUAN (GORDON)**

MINE GP  
Box 518, Tombstone  
Owner: Jonathan Gordon  
MINE, Cochise Co, Zn  
(Leased to William F Shaw)

**SAN MANUEL COPPER CORP**

Box 37, Superior  
Pres: A J McNab  
VP & Treas: H E Dodge  
VP & Gen Mgr: W P Goss  
Sec: Roy Bonebrake

**High Steele**  
 Mgr: C A Bilson  
 Agt: P G Sarver  
 W J Swanson  
**SAN MANUEL MINE**, Pinal Co, Cu  
 under devel  
 Supt: J A Buchanan  
**SHASTA**  
 Mgr: Frank Burchella

**SAN RAMON MINE**  
 400 E Broadway, Tucson  
 Owner: Bob Croce  
 MINE, 16 mi NW of Patagonia,  
 underground, Pb, Ag, Cu  
 Prod: 2 tons

**SANDERS MINE**  
 Siders  
 Mgr: C A McCarrell  
 MINE in Apache Co, bentonite

**SANDERS, W W**  
 Journal  
**LEADVILLE GP**, Cochise Co, Pb

**SANDERSON, HANS**  
 Box 1614, Prescott  
**EVEGREEN MINE**, Hassayampa  
 dist, underground, Pb, Zn, Au  
 Under devel  
 (Leased from Roma Tomlinson)

**SANTA TERESA MNG CO**  
 Safford  
 Sec: Paul Merrill  
**SANTA TERESA & FAIRVIEW**  
 MINES, Graham Co, Pb

**SCORPION MINE**  
 c/o C W Welles, Box 291,  
 Bisbee  
 Owner: C W Welles &  
 J L Bansaower  
 MINE, Santa Cruz Co, Ag, Cu

**SEIN FEIN MNG CO**  
 Klondyke  
 Pres: Dean Nicholson  
 MINE, Aravaipa dist, underground,  
 surface, Au, Ag, Cu, Pb  
 Supt: Raymond Pointer  
 Engr: E H Lundquist

**SENECA MNG CO**  
 Globe  
 Mgr: Louis Rayes  
 MINE in Gila Co, asbestos

**SENATOR MINE**  
 Box 951, Kingman  
 Opr: Miller, Sloan & Blum  
 MINE, Mohave Co, Ag, Pb

**"TS" MINE**  
 Box 1, Winkelman  
 Opr: Grissom Mines, Inc  
 MINE, Gila Co, Ag, Pb, Zn

**SHANKLIN, W R**  
 1 E Stickrad, Box 44  
 Dos Cabezas  
**GOLD PRINCE GP**, Cochise Co,  
 underground, Au, Ag, Pb

**SHANNON MINE GROUP**  
 706 16th St, Douglas  
 Owners: A J Hutchinson &  
 K C Moon  
 Oprs: Shannon Mng Co,  
 Tombstone

MINE, Cochise Co, Ag, Pb, Zn  
 Mgr: Freeman L Lomelino

**SHAPLEY PROCESSING CO**  
 (Div of Fluorspar Corp of Amer)  
 1488 E Town & Country Lane,  
 Phoenix  
 Pres: Cooper Shapley, Jr  
 VP: George Seeley  
 Sec-Treas: C Lockwood  
 Metal: M E Schaber  
**SNOWBALL & WHITE KING MINES**,  
 22 mi SW of Agulla, underground,  
 CaF<sub>2</sub>  
 Prod: 25 tons

**SHATTUCK DENN MNG CORP**  
 Humboldt  
 Mgr: H P Mills  
**IRON KING MINE**, Humboldt,  
 underground, Zn, Pb, Au, Ag  
 Prod: 600 tons  
 Mine Supt: E R Tomkinson  
**600-TON LOT MILL**, Humboldt  
 Mill Supt: Al Pessin  
 (See East)

**SHIRLEY LEE #1-6 MINES**  
 213 Madison Ave, Yuma  
 Owner: Emil E Frank  
 MINE, Yuma Co, Ag, Pb  
 Under devel

**SHOEMAKER, JOHN & CARL**  
 Box 124, Prescott  
**GOLD COIN GP**, Yavapai Co, Au  
 Under devel

**SIERRITA MNG & RANCHING CO**  
 Box 25, Ruby Star Rt, Tucson  
 Treas: Leander M Harris  
**GOLDEN FLEECE MINE**,  
 Pima Co, Au, under devel  
**COWBOY MINE**, Pima Co, Pb,  
 Ag, Zn, under devel  
**OLD POWERS MINE**, Pima Co, Cu

**SILVER BAR #1-4 MINES**  
 Lakeside  
 Owner: Wyne W Hansen  
 MINES, Pinal Co, Ag, Pb

**SILVER BELL, COLUMBIA & MARTINEZ MINES**  
 Box 607, Florence  
 Oprs: United Ariz Mines  
 MINES, Pinal X

**SILVER CORD MNG CO**  
 c/o James P Cleator, Cleator  
 MINE, Yavapai Co, Ag, Pb, Zn

**SILVER CREEK #2, 3, 4, 5 MINES**  
 Box 42, Superior  
 Owner: Nestor Sjofeld  
 MINE, Gila Co, Ag, Pb  
 Under devel

**SILVER FLAKE MINE**  
 306 Marma St, Prescott  
 Owner: W R Fitzgerald  
 MINE, 3 mi S of Prescott,  
 underground  
 Supt: J R Sanchez

**SILVER KNIGHT DEV CO LTD**  
 Box 2656, Phoenix  
 Pres: Gus A McKnight  
**SILVER KNIGHT MINE**, Yavapai Co,  
 Au, Ag, Pb  
 Under devel

**SILVER QUEEN MINE**  
 Superior  
 Oprs: Arthur & Talmadge  
 MINE, Chloride Cliffs, Pb,  
 Under devel

**SILVER QUEEN MNG CO**  
 124 N 2nd Ave, Phoenix  
 Sec-Treas: Floyd A Rains  
**SILVER QUEEN #1-4 MINES**,  
 Yavapai Co, Ag  
 Under devel

**SILVER REEF MINE**  
 Casa Grande  
 MINE, 13 mi S of Casa Grande,  
 underground, open pit, Ag  
 (Leased to W L Clayton)

**SMUGGLER-TEXAS MINES**  
 Washington Cp via Patagonia  
 Opr: Armando A Majalca  
 MINE, Santa Cruz Co, Ag, Cu, Pb, Zn

**SNOW DRIFT MINE**  
 439 S Marina St, Prescott  
 Owners: H A & L Berberich  
 MINE, 16 mi SE of Prescott,  
 underground, Au, Ag, Cu, Pb, Zn  
 Idle

**SNYDER MNG & MLG CO**  
 Box 41, Sonoita  
 Mgr: Phil Snyder  
 Sec: Mrs Phil Snyder  
**CONGLOMERATE, AURUM, EAGLE, & W A, REESE #1, 2, 3, MINES**,  
 Pima Co, Pb

**SO & SO MINE GP**  
 Box 1028, Globe  
 Owner: W L Black  
 MINE, Gila Co, Ag, Pb  
 Under devel

**SOMIND MNG & MLG CORP**  
 Salome  
 Pres & Gen Mgr: N T Zuver  
**HARQUAHALA & EAGLE MINES**,  
 Ellsworth dist  
 Under devel

**SOUTHERN CROSS MNG CORP**  
 Box 47, Quartzsite  
 Mgr: L A Aplington  
**LUCKY LEAD #1-6**, 10 mi S of Bouse,  
 underground, Pb, Zn, Ag, Au  
 Idle

**SPARKES, GRACE M**  
 Star Rt, Hereford  
 Mgr: Perry L Bones  
**STATE OF TEXAS MINE**,  
 Cochise Co, underground

**S R K MINE**  
 921 Anita St, Tucson  
 Owner: Anderson F Kerr  
 MINE, Pima Co, Cu

**STARLIGHT MINE GP**  
 Owners: Edward & Blanche  
 Harrison  
 Lessee: H Wolfe, Box 2138, Globe  
 MINE, Graham Co, Ag, Pb  
 Under devel

**STELLA MINE**  
 Tombstone  
 Mgr: C Neil Vogel  
 MINE in Cochise Co, Pb, Ag

**STEWART, CLYDE**  
 Winterhaven, Calif  
**HARSCRABBLE MINE**, 7 mi E  
 of Colo R in Yuma Co, Pb, Ag  
 Idle

**STODDARD MINE**  
 Box 156, Mayer, Cu  
 Owner: Eugene Meyer

**STRAIGHT AMERICAN MINE**  
 Portal  
 Owner: Ben Pague  
 MINE, Cochise Co, Ag, Pb

**STRATEGIC METALS CORP**  
 Box 8-9, Tucson  
 Pres: C C Calvin  
 VP & Treas: Irving Friedman  
**TUNGSTEN MILL**, 1066 Mission Rd

**SUMMIT COPPER MINES, INC**  
 Box 116, Payson  
 Pres & Gen Mgr: R W Thompson  
 VP: Dr A L Gagner  
 Sec: Nina M Thompson  
**SUMMIT MINE**, 6 mi NW of Payson,  
 underground, Cu, Au  
 50-TON GRAV MILL

**SUN-GOLD MNG CO**  
 711 Valley Nat'l Bldg, Tucson  
 Treas: John C Gungit  
**SUN-GOLD MINE**, Pima Co,  
 underground, Au  
 Under devel  
 Mgr: Alfred E Turner

**SUNRISE MNG CO**  
 Amado  
 Mgr: Russ Barclay  
 MINE in Santa Cruz Co, Pb, Ag, Au

**SUNSET MINES, INC**  
 Sells  
 Pres & Mgr: John Luizza  
 MINE, Pima Co, underground, Au  
 Under devel

**SUNSET MNG CO**  
 213 Minna St, San Francisco, Calif  
 Pres: J L Baiochi  
 VP: W O Kay  
 Sec: Charles Greenberg  
 MINE, Pinal Co, Au, Ag, Cu  
 Under devel

**SUNSHINE MINE**  
 4215 Allott Ave, Sherman Oaks,  
 Calif  
 Opr: Cactus Mlg Co  
 MINE, Pima Co, Au, Ag, Pb  
 Under devel

**SUTTON-DRYDALE CORP**  
 Box 35, Wilcox  
 Pres & Gen Mgr: Wayne Sutton  
**SUTTON MINE**, 16 mi SW of  
 Bowie, underground, Au, Cu, Pb  
 Under devel

**SWISSHELM MINE**  
 Box 603, Tombstone  
 Owner: William Ward  
 MINE, Cochise Co, Au, Ag

**SYLVIA & HORSESHOE CLAIMS**  
 848 Fern St, Holtville  
 Owner: D R Harryman  
 MINE, Yuma Co, Ag, Pb

**TEJON MINE LSG & DEV CO**  
 Box 603, Tombstone  
 Mgr: William Ward  
**TEJON MINE GP**, Cochise Co, Ag, Cu  
 (Owned by Steve Pryer, Gleeson  
 via Pearce)

**THANKSGIVING MINE**  
 Box 222, Florence  
 MINE, Mineral Hill dist, Au  
 Opr: Geo Myers  
 Under Devel

**THREE MUSKETEERS MINE**  
 Vicksburg  
 Mgr: L C Huthmacher  
 MINE in Yuma Co, W

**TIAJUANA MINES**  
 931 E Denton Lane, Phoenix  
 Pres: Charles T Tucker  
 MINE, Santa Cruz Co, Ag, Pb  
 Under devel

**TOLEDO MNG CORP**  
 622 Market St, Youngstown, Ohio  
 Pres: Port R Meilinger  
 VP: C L Thomas  
 Sec: C L Robinson  
 Dir: E W Bailey  
**MT SPRING MINE**, Bigdad, vein,  
 shaft, Zn, Pb, Ag, Cu, Au  
 Under devel

**TOMBSTONE DEV CO**  
 Tucson  
**TOMBSTONE GROUP**, Ag, Pb  
 Supt: Brooks Davis

**TORNADO MNG CO**  
 Box 1086, Miami  
 Mgr: Wm Humphrey, Globe  
**LONGON AHIZ MINE**, Banner  
 dist, Zn, Ag, Pb  
**TOHNAO MINE**, near Winkelman,  
 Pb, Zn  
 Idle

**TOUT MINES**  
 Dos Cabezas  
 MINE, Cochise Co, Au, Ag, Cu  
 Mgr: Edwin I Tout  
 Under devel

**TUNGSTENITE MINE**  
 Box 51, Kingman  
 Opr: Daiton Robinsonette

**TUNGSTEN REEF CLAIMS**  
 Bisbee  
 Gen Mgr: Hugh W Coke  
 W

**TURKEY CRK PLACER**  
 Cleator  
 Opr: Thomas H Cleator  
 MINE, Yavapai Co, Au

**UNION HILL MINE**  
 Wickenburg  
 Mgr: Isaac Campbell  
 MINE, Maricopa Co, feldspar

**UNION PLASTER CO**  
 Winkelman  
 Mgr: J S Tillman  
 MINE, Pinal Co, surface, gypsum

**UNITED MINERALS CORP**  
 518 Felt Bldg, Salt Lake City, Utah  
 Gen Mgr: G W Snyder, Jr  
 Geol: M C Godbe III  
**SANTA CRUZ MINE**, Patagonia,  
 Harshaw mng dist, NE of Nogales,  
 underground, Cu  
 Idle  
 (See Utah, Nev, Ida)

**UNITED MINES CO**  
 Chloride  
 Pres: M B Maxwell  
 VP: Dr J O Irish  
 Sec-Treas: C L Lind  
**EVAHOM, LITTLE TENN, & SCOTCH LASSIE GPS**, Au, Ag, Zn  
 Under devel

**U S BUREAU OF MINES**  
 Box 4097, Univ Station, Tucson  
 Mgr: Charles A Kume  
**MAGGIE GP**, Alamo, underground, Mi

**UNITED STATES SMELTING REFINING AND MINING COMPANY**  
 Mohave County  
**GOLD MINE**, idle  
 (See Alaska, Utah, New Mexico & East)

**U S TUNGSTEN CORP**  
 Box 500, Congress  
 Pres: J P Zannaras  
 VP: Charles P Lower  
 Sec: John P Robinson, Jr  
**ZANNARAPOLIS MINE**, 35 mi NW  
 of Congress, underground, surface,  
 scheelite  
 Under devel  
 Mine Foreman: L M Rutledge  
**250-TON GRAV-FLOT MILL**  
 Mill Foreman: Jess Parris

**UPSHOT MINES, INC**  
 Box 591, Prescott  
 Pres: Omar D Smith  
 VP: D H Wachtel  
 Sec-Treas: C E Ekroth  
**UPSHOT MINE**, Yavapai Co,  
 underground, Ag, Cu, Pb  
 Under devel

**VANADIUM CORP OF AMER**  
 Window Rock  
 Mgr: D W Viles  
 MINE in Apache Co, U V  
 (See Colo, New Mex, Utah & East)

**VANADIUM INVEST CO**  
 Box 1005, Globe  
 Mgr: R Scott  
**91 GROUP**, Pinal Co, Pb, Ag  
 Under devel



# CALIFORNIA

**VERDUGO, T H**  
Box 1923, Clifton  
CLIMAX LODE MINE, Copper Mt  
dist, Au, Ag  
Idle

**VIDANO MINE**  
Coolidge  
Owner: Bert Vidano  
MINE, Yavapai Co, Cu  
Under devel

**VIOLET, SNOWDRIFT &  
HIAWATHA CLAIMS**  
Wagoner  
Owners: Viola Mae & H J Bush  
MINE, Yavapai Co, Au, Ag  
Under devel

**VOGEL, M CO**  
Tomahstone  
MINE, Cochise Co, Au, Pb  
(Leased from Gallagher Vanadium  
& Rare Minerals Corp)

**VULCAN MINE**  
701 E 6th St, Tucson  
Idle

**WANDA MINE**  
c/o St Michael Hotel, Prescott  
Opr: W H Kirkpatrick  
MINE, Yavapai Co, Au, Ag, Pb

**WARD, JOE**  
Box 1041, Prescott  
GREAT SCOT MINE, 19 mi SE of  
Prescott, underground, Au  
Under devel

**WATERHOLE #1 & 2 MINES**  
Rt 1, Box 620, Yuma  
Lessee: W J Kamman  
MINE, Yuma Co, Au, W

**WESTERN CHEM CO**  
Chrysolite  
Mgr: Frank Witty  
MINE in Gila Co, asbestos

**WESTLAKE MINE**  
Globe  
Owner: Cont Tungsten Co  
Corp, W C Williams, Pres  
MINE, Gila Co, W  
Under devel

**J L WILKERSON & CO**  
Crown King  
Mgr: Ed W Carls  
MINE in Yavapai Co, Au, Ag

**WILKINS MINE GP**  
Box M, Patagonia  
Owner: Bond Mng Trust  
Lessee: Thomas Headley  
MINES, Santa Cruz Co, Ag, Pb

**WOLFF, CARL**  
Box 300, Bisbee  
ORCHARD & ANNE CLAIMS,  
Cochise Co  
Under devel

**WRIGLEY (VICTORY #2)  
MINE GP**  
c/o A W Smith, Box 1032, Kingman  
Owner: Charles K Scholey, Prescott  
MINE, Mohave Co, Ag, Pb

**YUCCA MNG & MLG CO**  
Box 87, Yucca  
Pres & Gen Mgr: R J Dalton  
VP: Fred Wolf  
Sec: Ben F Williams  
ANTLER MINE, 11 mi E of  
Yucca, underground, Cu, Zn, Ag, Au  
Prod: 120 tons  
Mine Supt: N J Dalton  
Mine Foreman: J Putnam,  
John Dailey  
Mine Engr: Blaine Grossnickle  
150-TON FLOT MILL  
Mill Supt: E E Lewis  
Mill Foreman: Proctor Milliken  
Assayer: Blaine Grossnickle

**YUMA CHIEF**  
Box 1085, Yuma  
Opr: Alan C Madden  
MINE, Yuma Co, Cu

**ZONIA MINE, MC MAHON  
GP**  
102 N Cortez St, Prescott  
Lessee: P D Hesse  
MINE, Yavapai Co, Cu  
Under devel

**A H L MINING CO**  
c/o Marvin R Fleming,  
1208 High St, Auburn  
MARY LEN, LODE,  
Auburn dist  
Idle

**ABBOTT MINES, INC**  
703 Market St, Rm 180+,  
San Francisco  
Pres: R F O'Brien  
Gen Mgr: C O Reed  
ABBOTT MINE, Williams,  
underground, Hg  
FURNACE OPN

**ACE HIGH MNG CO**  
869 Calif Dr, Burlingame  
KEYSTONE LODE,  
Allegany dist, Au, Ag

**ADAMS, C C**  
Box 97, Kelso  
FEN MINE, Kelso dist,  
Ida, Au, Ag

**ADAMS, HARRY**  
1406, Waterman St,  
San Bernardino  
ADAMS TALC MINE,  
San Bernardino, talc

**ADAY, OTIS**  
Polsom  
JOERGER PLACE, West  
Belt dist, Au, Ag

**ADOBE MNG CO**  
Rt 4, Box 349, Madera  
Mgr: Harold E Larsen  
ADOBE RANCH MINE,  
Dennis dist, Au  
MENDOZA & WATSON PLACERS  
PAC COAST AGGREGATES  
PROP & IKE BALL PROP,  
Friant dist, Au, Ag

**ALASKA MINE**  
685 6th St, San Francisco  
MINE, Pike, Au  
Mgr: R J Kohlen  
40-TON STAMP MILL, Pike  
(Leased to H L Sorenson)

**ALBERTOLI, MORRIS**  
P O Box 655, Big Pine  
HOPE (BLACK CANYON)  
GP LODE, White Mts dist,  
Au, Ag, Cu, Pb, Zn

**ALCAN MNG CO**  
5261 Stockton Blvd,  
Sacramento  
COFFEE CR DREDGE,  
Trinity Riv dist, placer  
Idle

**ALEXANDER, VERN B**  
Ft Jones  
RATTLESNAKE LODE,  
Klamath Riv dist, Au, Ag

**ALEXANDER, W &  
FUEL, W F**  
114 Silver St, Henderson, Nev  
WILSHIRE (MOHAWK GP) LODE,  
Clark Mt dist, Ag, Pb, Zn

**ALHAMBRA GOLD  
MINE CORP**  
Georgetown  
Pres & Gen Mgr: O H Griggs  
VP: S W Bunker  
Sec-Treas: H A Plainer  
Geol: E L Reeves  
ALHAMBRA MINE, El Dorado Co,  
11 mi NE of Placerville, underground,  
Au, idle  
Supt: Fred J Pearney  
50-TON FLOT MILL  
SUNSHINE MINE, Plumas Co,  
8 mi S of Quincy, idle

**ALICE MINE**  
Isabella  
Opr: R L Coughran  
Idle

**ALLEN, J**  
Chinese Camp  
WOOD CREEK MINE,  
Toulumne Co, placer, Au

**ALLIED MINING CO**  
Box 1028, Auburn  
PILLIKEN MINE, El Dorado  
Co, Cr

**ALMADEN DUMPS**  
Almaden  
MINE, Santa Clara Co, Hg

**ALPINE MINING CO**  
Box 114, Gardnerville, Nev  
ALPINE MINE, Hope Valley,  
20 mi W of Woodfords, undergd, W  
Prod: 30 tons  
Mine Foreman: Oscar Anderson  
50-TON GRAV FLOT MILL, 12 mi  
E of Gardnerville  
Mill Supt: J C Morris  
(Leased to Metal Dev Co)

**ALTA COPPER CO, INC**  
Box 309, Gasquet  
Pres & Gen Mgr: John I Nuce  
VP & Asst Gen Mgr: Joe Reinartz  
Sec: Ralph Yoder  
Geol: Roger Beals  
ALTA COPPER MINE, 8 mi E of  
Smith Riv, Del Norte Co, undergd, Cu  
Under devel

**ALTA MINING CO**  
c/o Ralph E Yoder  
Box 366, Crescent City  
ALTA LODE, Alta, Low  
Div dist, Cu

**AMERICAN ASBESTOS  
MNG CORP**  
11 W 2nd St, New York  
MINE, Calaveras Co, asbestos

**AMERICAN MINERAL CO**  
840 S Mission Rd, Los Angeles, 23  
Pres: Dr A H Stahmer  
VP & Gen Mgr: W A Merle  
WHITE ROCK MINE, 12 mi NW  
of Cantil, surf, ceramic clay, talcs  
Prod: 350 tons per mo  
Mine Supt: E E Edgemon  
100-TON MILL, Los Angeles,  
commercial grinding  
CLAY PIT, Kern Co

**AMERICAN POTASH &  
CHEM CO**  
3030 W 6th St, Los Angeles 34  
Pres: Peter Colefax  
VP of sales: W J Murphy  
VP, tech oper: R W Mumford  
VP, non-tech oper: R B Coons  
West Sales Mgr: D B Scott  
Pl Mgr: A J Anderson  
Pur Agt: L H Cornelius  
MINE, Lake Brines, potash,  
borax, soda salts, Br, Li  
Prod: 650,000 tons yearly

**AMERICAN SMELTING &  
REFINING CO**  
405 Montgomery Street,  
San Francisco  
BLAST FURNACE, Selvy, lead  
Mgr: W S Reid  
Gen Supt: H P Wagner  
Pur Agt: J M Hanna  
Smelter Supt: P C Moran  
Refin Supt: B K Shedd  
Mast Mech: W H Holmes  
(See Ariz, Colo, Ida, Mont,  
New Mex, Utah, Tex, Wash,  
Central & East)

**ANACONDA COPPER MNG CO**  
WESTERN OPERATIONS  
VP: C H Steele  
Gen Mgr: F A Wardlaw, Jr  
DARWIN MINES, Darwin, Pb, Zn, Ag  
Mgr: S K Droubay  
Pur Agt: T K Davis  
Supt: F E Tong  
Foreman: M M Tilley  
Engr & Geol: D L Davis  
Ch Elec: F J Paxetich  
Mast Mech: R M Trezona  
435-TON FLOT MILL, Darwin  
Supt: E C Peterson  
Metal: J H Teel  
Asst Metal: W B Davis, Jr  
Assayer: Louis Warnken, Jr  
SHOSHONE MINES, Tecopa,  
underground, surface, Pb, Ag, Au, Zn  
Devel work only  
Supt: Harold V Stewart  
Foreman: H I Hill  
140-TON MILL, Tecopa  
Foreman: E C Peterson  
LEVIATHAN MINE, Alpine Co, Ag  
(See Nev, Mont, Ida, Utah & East)

**ANCHO ERIE MNG CO**  
401 2nd St, San Francisco  
Gen Mgr: Bert C Austin  
MINE, Wash dist, Nev Co,  
underground, Au  
Supt: S J Odgers  
200-TON CYANIDE FLOT MILL, idle  
Supt: Ira D Billick

**ANDERSON ROCK PLANT**  
Box 1372, Fresno  
MINE, Fresno Co, placer, Au

**ANKENEY, GEORGE D**  
642 N St, Yreka  
LONG GULCH CLAIM, Siskiyou Co,  
underground, Au

**ARCHER MINING CO**  
510 S Spring St, Los Angeles 12  
Pres: B C Auer  
VP: F B Reicher  
Gen Mgr & Pur Agt: H J Price  
ARCHER MINE, Cochise Co, Ag  
Supt: Gene Herman  
Engr: V Areizaga

**ARGENTA CONSULTING CO**  
257 S Spring St, Los Angeles 12  
Pres: Harry Lee M...  
VP & Sec: Edin...  
(See Nevada)

**ARGO, ROY**  
11837 S Loma Dr, ...  
LILLY GP LODE, ...  
dist, Au, Ag, Pb, Cu, Zn

**ASELTINE, E P**  
Box 206, Duran  
LEARY LODE, ...  
(Swansea) dist, Zn, Pb, Ag, Cu

**ATKINS, G R**  
Box 11, Clareville  
COUGAR LODE, Green...  
Au, Ag

**ATKINSON, E B**  
P O Box 101, Johannesburg  
NINE SPOT, Randburg  
placer, Au, Ag

**ATOLIA MNG CO**  
1022 Crocker Rdg, San Francisco  
Pres: P R Bradley, Jr  
UNION MINE & others, ...  
(Leased to Hoefling Bros)

**ATOLIA TUNG-SOL MNG CO**  
5633 Lexington Ave, Los Angeles  
ATOLIA TUNG-SUN MINE, Kern  
Co, W

**BACKELS, ANDREW & PAUL**  
80 Pierce St, San Francisco, 37  
EMPIRE-LONE STAR GP, 12 mi  
NE of Downsville, underground, Au,  
under devel  
MEXICAN MINE, 2 mi E of  
Goodyear's Bar, Au, under devel

**BADE, WILLIAM J**  
414 Sherman Way, Sacramento  
LEE MINE, Rocklin (Loomis)  
dist, placer, Au, Ag

**BADLEY, VICTOR E**  
2829 Morcom Ave, Oakland  
ALBA MINE, New Riv dist,  
placer, Au, Ag

**BAINBRIDGE & MC HENRY**  
Nipton  
CARBONATE HILL MINE, Kingsley  
dist, Au, Pb, Zn

**BARNES, A E & ROBERT H  
HILLARD**  
4355 Arizona, San Diego  
Box 88, Quincy  
DAVIS MINE, Greenville dist,  
placer, Au, Ag

**"BARNETT"**  
c/o Thos E Creed, Clims  
MINE, San Bernardino Co, Au, Ag, Cu,  
Pb

**BARNETT & GREEN**  
Gen Del, Ripon  
CHEROKEE MINE, Maricopa Co, Ag,  
Idle

**BARRETT, W J & MARY**  
4476 Santa Cruz Ave, San Diego  
TRAILS END MINE, SQUARE MILE  
CLAIM, Calica dist, Au, Ag, Cu

**W B BARTON CHROME ORE  
CO**  
P O Box 70, Grants Pass, Oregon  
MINE, Del Norte Co, Cr

**BASIN MINING CO**  
Box 726, Bakersfield  
Mgr: Dan Cronin  
HIDDEN TREASURE & LENA MINES  
Green Mt dist, Idor, Ag, Au  
Idle

**BASSLEY, FREDERICK**  
Box 443, Yreka  
CHERRY HILL MINE, Scott Riv  
dist

**BAUMEISTER & SON**  
Box 396, Cloverdale, Hg

**BEAN, STONE & ASSOC**  
Woodleaf  
SLAPJACK MINE, underground, Ag

**BEAR CR TUNGSTEN MNG CO**  
P O Box 865, Reno, Nev  
BEAR CR MINE, El Dorado Co, W

**BECK, MARTIN**  
P O Box 343, Mohave  
ANTHONY QUEEN MINE,  
Kern Co., W. St.  
CUSTON MILL

**BEDELL, STUART**  
Big Pine  
WALCALIA MINE, Inyo Co., W.

**BEDWELL, VIRGIL**  
P O Box 26, Denair  
PRETT MINE, Maricopa Co.,  
underground, Au

**BELDEN AMADOR MINES, INC**  
Box 29, Pine Grove  
Pres: Donald Griffin  
VP & Gen Mgr: Leon M Banks  
Sec: Don A Weber  
BELDEN MINE, Pine Grove, 20 mi  
E of Jackson, Au, Ag  
Prod: 40 tons  
40-TON GRAY FLOT MILL

**BELL, GEO P**  
Box 374, Santa Margarita  
RINCONADA MINE, San Luis Obispo  
Hg

**BELL MINING CO**  
1/2 Ben Bell, 1806 Shamrock Way,  
Bakersfield  
TULE COPPER-CEDAR HILL GPS  
LODE, Cp Wishon dist, Cu, Ag, Zn

**BENNETT & BARGINSKI**  
1534 N Curson Ave, Los Angeles 46  
Gen Mgr: J H Bennett  
Asst Gen Mgr: Max Barginski  
INDEPENDENT MINE, Box 4, Trona,  
2 mi from Aguerberry Pt, Death  
Valley, undergd, Au, W, Ag  
Prod: 10-25 tons  
40-TON GRAY-CYAN-AMAL MILL,  
Harrisburg Flat  
Mine & Mill Supt: J H Bennett

**BENOIST, M L**  
Box 293, Weaverville  
CHLORIDE-GLOBE GP LODE,  
Trinity Riv dist, Au, Ag

**BEMBRY, J RILEY**  
Cima  
STANDARD MINE, San Bernardino  
Co, W

**BENNETT, J H &  
SMITH, GEORGE A**  
Box 4, Trona  
Gen Mgr: J H Bennett  
Asst Gen Mgr: George A Smith  
SKIDOO-DEL NORTE MINE,  
Wildrose dist, Death Valley,  
underground, under devel  
40-TON FLOT-GRAY-CYAN-AMAL  
MILL, Emigrant Canyon  
Mine & Mill Supt: J H Bennett  
Asst Mine & Mill Supt: Geo A Smith

**BENNETT MNG CO**  
Big Bar  
MINE, Trinity Co, placer, Au, Ag

**BENNETT, PERRY T**  
Box 324, Weaverville  
REX MINE, Trinity Riv dist,  
hydraulic placer, Au

**BENWARE, C E**  
Bishop  
TREASURY #2 MINE, San Bernardino  
Co  
BISHOP CONCENTRATE & CLNG CO,  
Inyo Co

**BERG, ROY M**  
Box 478, Desert Center  
CAP HUNTER LODE,  
Chuckawalla dist, Pb, Ag

**BERG & SCIOCCHETTI**  
Box 637, Hollister  
JUNPER MINE, Paicines, 51 mi SE  
of Hollister, underground, Hg  
Under devel  
Prod: 14 tons  
Mine Supt: Louis Sciocchetti  
Under devel

**BERTIE, DR WILLIAM J**  
Box 843, Las Vegas, Nev  
COARSE GOLD, COARSE GOLD #2,  
& DOUBLE CROSS CLAIMS,  
Plumas Co, placers, Au

**BEST MINES CO**  
Box 177, Downieville  
Owner: C L Best  
GOLD BLUFF, BRUSH CR & OXFORD  
MINES, underground, Au  
Mgr: L L Huelsdonk  
Foreman: W T Reed, Jr  
Engr: B C Austin  
Elec: A R Hinton  
400-TON FLOT-GRAY MILL  
Supt: John Folsom  
Foreman: Vernon Huffman

**BEYER, ALBERT**  
c/o Pioneer Mng Co, 320 Fell St,  
San Francisco  
PIONEER GROUP MINE, Foresthill  
dist, placer

**BIG GOLD MINE**  
Box 251, Randsburg  
Opr: J M Kreta  
Au, W

**BIG RAM TUNGSTEN, INC**  
Bishop  
W

**BILLS, L C**  
3814 Chestnut Ave, Long Beach  
JIM TOM CLAIM, Randsburg dist, Au  
ADA R MINE, W

**BISHOP CONC & CLEANING CO**  
Bishop  
CUSTOM MILL, W & base metal ores

**BLACK ROCK MNG CORP**  
137 Clarke St, Bishop  
Pres: K C Li  
VP: Carl M Dice  
Gen Mgr: Clarence H Hall  
Sec: J H Hirst  
Metal: W E Sands  
Geol: Larry Callahan  
Purch Agt: Otis A Kittle  
BLACK ROCK MINE, 35 mi N of  
Bishop, underground, surface,  
scheelite  
Prod: 300 tons  
Gen Supt: J C Esola, Jr  
Mine Supt: G L Hall  
250-TON FLOT MILL, acid treatment  
of concentrates  
(See Nevada)

**BLACKSTONE MINE**  
5208 Barrett Ave, Richmond  
Gen Mgr: L A Sanchez  
BLACKSTONE MINE, 4 mi N of  
West Point, underground, Au, Ag, Pb  
Prod: 30 tons  
Supt: Elliot H Syms  
Foreman: Louis Sanchez  
30-TON FLOT MILL  
Foreman: Tony Partial  
SMELTER, Au, Ag, idle

**BLEW JORDAN ZINC MINE**  
2821 Siebel St, Los Angeles 31  
Opr: R B Lytle  
MINE, 15 mi NW of Fontana, undergd,  
Zn, Pb, Ag, Cu  
Under devel

**BLICKENSTAFF, E B**  
Mojave  
STANDARD LODE MINE, Mojave  
dist, Au, Ag

**BLUE GRAVEL CO**  
Downieville  
BLUE GRAVEL MINE, Poverty Hill  
dist, placer, Au, Ag

**BLUE GRAVEL MINE**  
c/o R H Cochran, Box 206, Redding  
BLUE GRAVEL LODE MILL, Redding  
dist, Au, Ag

**BLUE RIDGE MIDWAY  
GOLD MINES CO, LTD**  
Callahan  
Pres: Gerald B Hartley  
VP: Gerald B Hartley, Jr  
TIPTOP MINE, Box 478, Bishop,  
35 mi N of Bishop, surface,  
scheelite, under devel  
HILTON CR MINE, Box 478, Bishop,  
35 mi N of Bishop, surface, scheelite  
Prod: 30 tons  
SUGAR HILL & BIG BLUE MINES,  
Callahan, 5 mi S of Callahan, under-  
ground, Au, idle

**BLUE RIDGE MNG CO**  
Bishop  
W

**BLTYHE MANGANESE CO**  
88+5 W Olympic Blvd,  
Beverly Hills  
ARLINGTON GROUP MINE,  
Riverside Co, Mn

**BON TON MINING CO**  
Murphys  
BOWER LODE MINE, East  
Belt dist, Au, Ag

**BONHAM, WM & BERNICE**  
Lone Pine  
WHITE MT, FLORENCE, ALBERTA  
TRINITY MINES, Inyo Co, talc

**BOUVIER, A R**  
Callahan  
PANARO MINE, Siskiyou Co,  
placer, Au

**BRADFORD, L M**  
Box 207, Madera  
DAULTON MINE, Daulton dist,  
Ag, Cu, Pb  
Idle

**BRADLEY & EKSTROM, INC**  
320 Market St, San Francisco  
Pres: E O Ekstrom  
VP & Gen Mgr: R F Helmke  
Sec: M E Bradley  
MINES, Calif, Oregon, Nev &  
Utah, underground & surface,  
Cr, Fe, Mn, W  
Mine Supt: J A McDonald  
Mine Foreman: J L Bay  
Mine Engr: J K Benedict

**BRADLEY MINING CO**  
425 Crocker Bldg, San Francisco 4  
Pres: Worthen Bradley  
Sec-Treas: E A Griffen  
REED MINE, Monticello, Hg  
SULPHUR BANK MINE, Clearlake  
Oaks, Hg  
GREAT WESTERN MINE,  
Middletown, Hg

**BRIGGS, HARRY E**  
Box 613, Trona  
RED CLOUD MINE, 10 mi E of  
Ballarat, Panimint Mts, under-  
ground, Au, Ag, Pb, under devel  
SOUTHERN HOMESTAKE MINE,  
8 mi S of Ballarat, underground,  
Au, Ag, idle

**BRIGHT, T L**  
Independence  
SILVER BAR LODE MINE,  
Independence (Russ) dist,  
Au, Ag, Cu, Pb

**BROCK, ROBERT**  
River Pt, Box 23, Madera  
HEISKELL PROP, Madera Co, Au  
Idle

**BROOKS, J C**  
Box 26, North San Juan  
BIG CHIEF & AMERICAN DIGGINGS,  
Nevada Co, placers, Au

**BROWER, JESSE H**  
Bagby  
COMBINATION MINE, Mariposa  
Co, underground, Au

**BROWN BEAR MINES**  
Box 66, French Gulch  
Gen Mgr & Consul Engr: E E Erich  
BROWN BEAR, TANGLE BLUE &  
REID MINES, 12 mi W of French  
Gulch, Shasta Co, undergd, Au, idle  
70-TON GRAY-FLOT MILL at Brown Bear  
30-TON GRAY-FLOT MILL at  
Tangle Blue

**BROWN, EUGENE R**  
O'Brien, Oregon  
HIGH PLATEAU MINE, Del Norte Co  
Cr

**BROWN, JOSEPH GABEL**  
Camptonville  
JOUBERT (DEPOT HILL) MINE,  
placer  
PIKE, Indian Hill dist, Au, Ag

**BROWN, LESTER**  
Box 674, Bishop  
L & L MINE, Inyo Co, W

**BROWN, MEREDITH**  
609 N Friends, Whittier  
LUCKY BOY MINE, San Bernardino  
Co, W

**BROWN'S CREEK PLACER**  
Box 23, Weaverville  
GOLD PLACER, Trinity Co

**BROWNSTONE MNG CO, INC**  
Box 983, Pasadena  
Pres & Gen Supt: W V Skinner  
VP: Thomas Le Sage  
Sec: Jack Cathey  
BROWNSTONE MINE, Bishop, 20  
mi W of Bishop, undergd, scheelite  
Prod: 30 tons  
LE MOYNE MINE, 19 mi NW of  
Towns Pass, Death Valley, under-  
ground, Pb, Ag, Au  
Prod: 20 tons  
Mine Supt: W V Skinner

**BRUBAKER, KEATS**  
Cecilville  
HORSESHOE BEND MINE, Salmon  
Riv dist, placer, Au, Ag  
**BRYAN, BERT L**  
Smith Flat  
IDA BRYAN PROP, El Dorado Co, Au

**BUCHENAU, H J**  
Star Rt, Box 17, Madera  
JESSIE BELL LODE MINE, Wes  
Belt, Daulton dist, Au, Ag, Cu

**BUCKMAN LABORATORIES, INC**  
Geyser Road, Cloverdale  
Pres: Dr S J Buckman  
VP: W D Stitt  
Sec: C H Turner  
BUCKMAN MINE, 16 mi E of  
Cloverdale, undergd, surface, Hg  
under devel  
Prod: 40 tons  
Asst Mine Supt: B R Johnson  
60-TON ROTARY FURNACE

**BUENA VISTA NO 2 MINE**  
Box 25, Redding  
Owner: H G Graves  
MINE, 3 mi W of Redding, Au, Cu  
20-TON FLOT MILL  
Idle

**BUNKER HILL MNG CO**  
Box 1347, Redding  
Gen Mgr: A Mansfield  
BUNKER HILL MINE, 3 mi NW of  
Redding, underground & surface,  
Au, Ag, Cu  
Foreman: Peter Kanuck  
Idle

**BURGNE, DON**  
Box 485, Bishop  
SHAMROCK MINE, Inyo Co, W

**BURKHART, B F**  
Bear Valley  
A J CLAIM, Mariposa Co, undgrnd,  
Au

**BURRELL, ARTHUR S**  
Rt 3, Box 835, Los Gatos  
GUADALUPE MINE, Santa Clara Co,  
Hg

**BURTON MINES, INC**  
Rosamond  
Mgr: C G Burton  
Asst Mgr: G A Settle  
Purch Agt: George McNamee  
TROPICO MINE, 5 mi W of  
Rosamond, underground, Au, Ag  
RUTH MINE, 13 mi NW of Trona,  
underground, Au, Ag, idle  
160-TON CYANIDE MILL  
Foreman: Alec Burton

**BUSCOY, ANTON**  
Tejon  
DUTCHMAN #1 MINE, Butte  
Valley dist, placer, Au, Ag

**BUTTE CREEK ROCK CO**  
Box 512, Chico  
BUTTE CREEK GRAVEL PLANT,  
Butte Creek dist, Au, Ag

**BUTTE LODE MNG CO**  
Box 195, Randsburg  
BUTTE LODE MINE, Kern Co,  
underground, Au, Ag  
CUSTOM MILL

**BUTZ, ALBERT**  
Box 1103, Nevada City  
SUNSHINE LODE, Grass Valley

**C & H MATERIALS CO**  
P O Box 638, Oldale  
C & H GRAVEL PLANT,  
Bakersfield dist, sand and  
gravel, Au, Ag

**C H M LEASING CO**  
Iowa Hill  
OCCIDENTAL MINE, Placer Co, Au

**C M S STRATEGIC METALS, INC**  
8000 SE Foster Rd, Portland 6  
CLAIMS, Del Norte Co, Mn

**CALAVERAS CENTRAL  
GOLD MNG CO, LTD**  
Angels Camp  
Pres & Gen Mgr: Harry Sears  
Mgr: Desmond Sears  
MINE, underground, Au  
CRUSHING & SCRUBBING PL, Au, Ag  
Prod: 600-800 tons  
Under devel

**CALIFORNIA LIBERTY  
MINE CO, INC**  
Dobbins  
Pres: F J Wilson  
MINE, N of Dobbins, underground, Au  
Supt: Vern Cox

**CALIFORNIA LIMESTONE  
PRODUCTS, INC**  
406 Kress Bldg, Long Beach 12  
Pres: L F Albrecht  
VP & Geol: Robert R Platt  
Gen Mgr: R S Hall  
MINES, 16 & 21 mi NW of Blythe,  
wallastonite, marble, Mn  
Under devel  
Mine Supt: R S Hall  
Asst Mine Supt: D S Ligier  
Mine Engr: Robert R Platt

- CALIFORNIA MINERALS**  
c/o Roy Cummings, Sr.  
Big Pine, Calif.  
W
- CALIFORNIA PLACER MINE**  
c/o Marie Martin, Co-Owner  
150 Arlington Ave., Berkeley 7  
CALIFORNIA PLACER GROUP,  
Last Chance dist., placer, Au, Ag
- CALIFORNIA POTTERY CO**  
Box 68, Niles  
Clay
- CALIFORNIA QUICKSILVER MINES, INC**  
Williams  
ABBOTT MINE, Lake Co., Hg
- CALIFORNIA SILVER CORP**  
9814 Washington Blvd., Culver City  
ANNEX MINE, Silurian dist., Ag, Cu,  
Pb  
Idle
- CALIFORNIA TUNGSTEN**  
921 Felt Bldg., Salt Lake City, Utah  
TRIANGLE MINE, Kern Co., W  
Idle
- CALIFORNIA ZONOLITE CO**  
Sacramento  
Mgr: C H Wendel
- CALIVADA DEVEL CO, INC**  
Box 4, Garden Valley  
Pres & Gen Mgr: Hal T Hall  
VP: Louis R Hall  
Sec & Asst Gen Mgr: E E Hall, Jr.  
Elec Engr: Edmund Cheek  
Gen Supt: R A Hathaway  
Mech Engr: Frank Boucher  
EL DORADO COPPER MINE, 12 mi  
N of Placerville, underground, Cu  
Prod: 125 tons  
100-TON FLOT MILL
- CALRADO DEVEL CO**  
406 Kress Bldg., Long Beach 12  
Co-partners: L F Albrecht &  
R S Hall  
Gen Supt: Robert R Platt  
ARLINGTON MANGANESE MINE,  
22 mi NW of Blythe, underground, Mn  
Prod: 250 tons  
250-TON HV MEDIA MILL, jigs,  
at Inca siding  
(Leased to Blythe Manganese Co.)
- CAMPION, IVAN H**  
Somerset via Coles Station  
IRISH SLIDE MINE, 23 mi SE of  
Placerville, underground,  
placer, Au, Ag  
Under devel
- CAPURRO, MIKE &  
WATTS, ALVIN J**  
718 Main St., Placerville  
STRAWBERRY PLACER MINE,  
Iowa Hill dist., Au, Ag
- CARPENTER, A C**  
Box 576, Yreka  
THE WINNER LODE, Yreka dist.,  
Au, Ag
- CARSON HILL GOLD MNG CO  
CORP**  
206 Sansome St., San Francisco  
Pres: C L Cooper  
VP: H N Kuechler, Jr.  
Sec-Treas: D D Farley  
MINES: Melones  
1,000-TON CONCENTRATOR with  
cyanide plant
- THE CHEMICAL & PIGMENT  
CO**  
766 50th Ave., Oakland  
(See Glidden)
- CASA DIABLO MINE**  
Bishop  
Mgr: J W Bertram  
MINE, Mono Co., Au, Ag, Pb
- CASTEEL, L R**  
Rt 1, Box 678, Fresno  
HUTSON PROP MINE,  
Madera Co., placer, Au
- CASTLE CRAGS CHROME CO**  
Box 126K, Castella  
Cr
- CASTLE, E C**  
Box 139, Bishop  
WHITE CAPS MINE, Inyo Co., W
- CASTRO CHROME ASSOC**  
232 Montgomery St., San Francisco  
Opr: G I Barnett  
MINE, near San Luis Obispo Creek  
GRAV MILL
- CENTRAL EUREKA MNG CO**  
Rusk Bldg., San Francisco  
Pres & Gen Mgr: J D Swift
- VP: Keith Kunze  
Purch Agt: E Cunningham  
Sec-Treas: D D Smith  
Gen Supt: A Kendall  
MINE at Sutter Cr., Amador Co.,  
underground, Au, Ag  
Foreman: E Mortensen  
Shiftboss: Sam Hargis  
Mech Engr: Primo Frediani  
Elec Engr: Paul Ransom  
Safety Engr: Nick Eliskovitch  
250-TON STAMP FLOT MILL with  
cyanide unit, Au, Ag  
Supt: Keith Kunze  
Foreman: Don Jones  
Assay: Frank Arnisi
- CENTRAL PACIFIC GOLD MNG**  
6236 Sycamore St., Seattle, Wash  
Pres: W H Patterson  
Sec & Mgr: Mrs Laura Munk  
SURE PAY MINE, 18 mi E of Oroville,  
Au, Ag, Pb
- CENTRAL ROCK & SAND CO**  
P O Box 425, Sanger  
SAND & GRAVEL PIT, Kings Riv  
dist., Au, Ag
- CHAMBERLIN, CHARLES**  
Box 24, Johannesburg  
OK GROUP, Kern Co., undgrnd, Au
- CHANNEL EXPLOR CO, INC**  
217 Pine St., Seattle, Wash  
MAMMOTH (CHANNEL) PLACER  
MINE, Butte Creek dist., Au, Ag
- CHEM-CAL CORP**  
3440 Olympic Blvd., Los Angeles  
DOW PROP. Lake Co., S
- CHAPMAN & SONS**  
Junction City  
CHAPMAN & FISHER PLACERS,  
Trinity Co., hydraulic, Au  
Supt: G P Chapman
- CHASE, ED**  
Box 202, Downieville  
CHASE MINE, Sierra Co., Au
- CHENOWETH, E E**  
6517 Raymond St., Oakland 9  
ORO GRANDE PLACERS,  
Siskiyou Co., Au
- CHIAPELLA, S E**  
1623 No Las Palmas, Los Angeles  
MAMMOTH TALC MINE, San  
Bernardino Co.
- CHLORIDE CLIFFS MINE**  
Beatty, Nev  
MINE, Inyo Co., undgrd, Au, Pb
- CHOWCHILLA DREDGE CO**  
Box 348, Whittier  
CHOWCHILLA MINE, Madera Co.,  
placer, dredge, Au  
Idle
- CHRISTENSEN, LOUIS**  
Box 121, Downieville  
RELANCE LODE, Sierra City  
dist., Au, Ag
- CHRISTMAS GIFT**  
247 N Virginia St., Reno, Nev  
Mgr: W V & L V Skinner  
MINE, Darwin dist., Inyo Co., Ag, Pb
- CITY BLUE GRAVEL MINE**  
Box 206, Redding  
Officers: H G Hampton, R H  
Cochran, Donald Playlinsen  
MINE, 1 mi W of Redding, undgrnd, Au  
23-TON FLOT MILL  
Idle
- CLAIR, V D**  
Box 3, Triona  
MARGARET MINE, South Park dist.,  
Inyo Co., undgrnd, Au, Ag  
Under devel
- CLAREMONT MNG CO**  
336 W 2nd St., Claremont  
Pres: Charles L Workman  
VP: Howard F Keller  
Sec & Gen Supt: Harry B  
Hollingsworth  
SAGAMORE MINE, 17 mi S of Ivanpah,  
undgrnd, hubnerite, Pb, Ag, Cu, Zn
- CLARK BROS**  
Star Rt., Box 32B, Folson  
PINE KNOLL MINE, West Belt  
dist., Au, Ag
- CLARK, CHARLES A**  
P O Box 41, El Dorado  
OPHIE LODE, Mother Lode dist.,  
Au, Ag
- CLAYE, ROBERT JR**  
Hill  
GOLDEN RULE MINE, Siskiyou Co.,  
underground, Au  
MILL
- CLOVERDALE MINE**  
Cloverdale  
Gen Mgr: Andrew Rocca  
Supt: Joseph Garcia  
Partner: Joseph Schor  
MINE, near Cloverdale, Hg  
70-TON ROTARY FURNACE
- COEUR, NEL**  
Box 198, Sonora  
LUCKY STICK MINE, Tuolumne  
dist., underground, Au, W
- COLE, DARRELL V**  
Box 157, Randsburg  
COLE GROUP, placers  
Under devel
- COLLINS, JOHN T**  
Julian  
ELLA GROUP MINE, San Diego Co.,  
underground, Au, Ag
- COLEMAN, CARLTON**  
c/o Nimshe Stage, Chico  
COLEMAN PLACER RANCH,  
Butte Creek dist., Au, Ag
- COLORADO GROUP**  
Cosos dist., Inyo Co.  
Oprs: Wright & Taylor  
Pb
- CONCONULLY MNG &  
MLG CO**  
Red Bluff  
Cr
- CONDA PROPERTIES**  
951 La Cienega Blvd., Los Angeles  
GOLCONDA MINE, San Bernardino  
Co., asbestos
- CONNLEY, LOU**  
1270 Orchard Home Dr.,  
Medford, Oregon  
BLACK BEAR MINE, Siskiyou Co.,  
chrome
- CONRAD, J H**  
Columbia  
SHORE LODE, Mother Lode dist.,  
Au, Ag
- CONROY, EVERETT R**  
Horse Creek  
BARTON PLACER MINE,  
Klamath Riv dist., Au, Ag
- CONS MANGANESE CORP**  
300 Montgomery St., San Francisco  
MINE, Mendocino Co., Mn
- CONS ROCK PRODUCTS CO**  
2730 S Alameda St., Los Angeles 54  
Pres: Robert Mitchell  
VP: J W Best  
Sec: S F Whaley  
Prod Mgr: R C Griffin  
Purch Agt: L L Haney  
Safety Engr: R E Montgomery  
LARGO PLANT, Azusa, surface, Au  
Supt: G A Lagrone
- CONSOLIDATED TUNGSTEN**  
1739 Terrace Ave., Fresno  
Owner: A R McGuire  
MINE 23 mi E of Dinuba, W  
Foreman: C L Tibbals  
50-TON GRAV PLANT  
Supt: Ellis Sterling
- CONTINI, NICK**  
Star Route #2, Jackson  
1 X L LODE & PLACER MINE,  
East Belt dist., Au, Ag
- COOLEY, ROBERT D**  
Rt 2, Yreka  
ROBERT D MINE, Siskiyou Co., Au
- COPE, DANIEL M**  
Berry Creek  
LITTLE KLONDYKE PLACER MINE,  
Salmon Riv dist.  
Assessment work only
- COPPER BASIN MINE**  
Parker, Ariz  
Oprs: Dils & Hile  
MINE, San Bernardino Co., Cu
- COPPER HILL MINE**  
320 Geary St., San Francisco  
Trustee: R E Fitzgerald  
COPPER HILL LODE, West Belt  
dist., Cu, Au, Ag, Zn  
Under devel
- COPPER QUEEN MNG CO**  
c/o Miles W Edgill, President  
1321 "T" St., Sacramento  
COPPER QUEEN GROUP LODE,  
Sawpit Flat dist., Cu, Au, Ag
- CORDERO MINING CO**  
131 University Ave., Palo Alto  
VP: S H Williston  
Gen Mgr: J Eldon Gilbert
- NEW ALMADEN MINE**  
c/o Roy Cummings, Sr.  
Big Pine, Calif.  
W
- MAY LUNDY MINE**  
c/o Marie Martin, Co-Owner  
150 Arlington Ave., Berkeley 7  
CALIFORNIA PLACER GROUP,  
Last Chance dist., placer, Au, Ag
- CORDILL, ROBERT H**  
Niptan  
H & H SILVER MINE,  
San Bernardino Co., Ag, Cu
- CORONADO COPPER & ZINC  
CO**  
323 W 6th St., Los Angeles 14  
Pres: R W Moore  
VP: H T Mudd  
Gen Supt: K C Richmond  
Sec & Purch Agt: A J Davidson  
AFTERTHOUGHT MINE, 22 mi NE  
of Bedding, underground, Zn, Cu  
Pb, Ag, Au  
80-TON FLOT MILL  
Supt: R K McCallum  
Idle  
(See Arizona)
- COSTA, JOSEPH E**  
Bear Valley  
Co-owner: Eli J Maras  
Mt Bullion  
SPECIMEN LODE, Mother Lode  
dist., Au, Ag
- COSUMNES GOLD DREDGING  
CO**  
465 California St., San Francisco  
Pres: G M Standfield  
Gen Mgr: A W Hopfield  
PLACER, Slough House, Butte  
dredge  
Idle
- COSUMNES MINES, INC**  
Grizzly Flats  
MINE, El Dorado Co., Au, Ag  
Idle
- COURSON, W W**  
Box 202, Randsburg  
NANCY HANKS MINE, Kern Co.,  
underground, Au, Ag
- COYOTE MINING CO**  
Bishop  
W
- COWAN, JAMES H**  
Little Lake  
MAYBE MINE, Inyo Co., W
- CRABTREE & SULLIVAN**  
Jackson  
MINE, Amador Co., Mn
- CRAIG, BERT**  
Box 6, Essex  
CRAIG MINE, San Bernardino Co., Ag
- CRAIG, MRS C M**  
2457 Portola Way, Sacramento  
PERKINS GRAVEL CO PLANT,  
American River dist., placer, Au, Ag  
HAGGIN GRAVEL PITS &  
DEL PASO GRAVEL PITS,  
Fresno dist.
- CRAIG, SAM**  
Box 72, Essex  
JUMBO & PACKARD CLAIMS,  
San Bernardino Co., W
- CRAWFORD, G**  
Bishop  
BROOKS MINE, Inyo Co., W
- CRAWFORD, LOWELL V &  
COOK, JOSEPH W**  
Tecopa  
PADDY PRIDE LODE, Cosumnes  
dist., Pb, Ag, Au
- CRESCENT PACIFIC MNG CO**  
240 California St., San Francisco  
Pres: E L Oliver  
Gen Mgr: H L Eastman  
Supt: J N Ducks  
Dir: John Daniel  
MIDDLE YUBA MINE, Nevada City,  
dragline, Au  
Supt: L A Smith  
Prod: 100-200 ounces  
EASTMAN PLACER MINE,  
Washington (No Bloom/field) dist.,  
Au, Ag
- CREVISTON, HAZEL**  
Camptown  
MARY JANE GROUP, Sierra Co., Ag
- CROTSJENBERG, S D**  
Kernville  
BRUSH CREEK MINE, Kern Co., W
- CROW, L G**  
Gen Del, Yreka  
DEER TRAIL LODE, Klamath  
Riv dist., Au, Ag, Pb



CROW, M V  
Box 900, Nevada City  
LOCKE MINE, Sierra Co., placer, Au

CREWTON, VICTOR  
Hayden Camp  
MINE, Siskiyou Co., Au, Ag

CRYSTAL CAVE MNG CO  
Box 452, Las Vegas, Nev  
CARBONATE KING ZINC LODE,  
Yavapai dist., Zn, Au, Ag, Pb

CRYSTAL MINE  
Box 57, Healdsburg  
MINE, 15 mi NE of Healdsburg, Hg  
Mgr: C A Baumeister  
CLIVER-BAR MINE, 16 mi SW of  
Clearlake, underground, Ag  
30-TON ROTARY FURNACE  
Prod: 10 flasks per mo

CUMMINGS, M L  
3041 Montgomery Way, Sacramento  
FRIENDLY GROUP, Sawpit dist,  
placer, Au, Ag  
Under devel

CUMMINGS, THOMAS M  
Denny  
MANZANITA PLACER MINE,  
New River dist., Au, Ag

CZERWONKA, FRANK  
P O Box 104, Lucerne Valley  
HAMBLER, Blackhawk dist, lode

DAILEY, HERMIS W  
Burnt Ranch, Trinity Co  
LAST CHANCE MINE, placer, Au  
SURPRISE COPPER MINE,  
underground, Cu

DANCER, C  
Box 104, Grass Valley  
PAY MINING CLAIM, Nevada Co  
placer, Au

DARRINGTON, LESLIE  
Star Rt 80, Folsom  
JOHN AVERY PROP., Placer Co., Au

DARWIN ANTIMONY NO 1  
314 1/2 N Main St, Santa Ana 56  
Opr: James B Utt

DAVIDSON, BERT  
No Bloomfield Star Rt, Nevada City  
SADIE D MINE, Nevada Co., under-  
ground, Au  
MILL

DAVIES, TOM  
Caliente  
JUAN DOSE MINE, Kern Co., under-  
ground, Au, Ag  
MINNIE ELLEN MINE, Tulare Co  
P & D LODE, Agua Caliente dist,  
Ag, Au

DAVIS, CLINTON F  
Box 32, Greenwood  
C B DAVIS PROP (McGRUBB) LODE,  
Mother Lode dist., Au, Ag

DAVIS, RICHARD D  
1144 11th St, San Bernardino  
COPPER CRYSTAL LODE, Slate  
Range dist., Pb, Ag, Cu, Zn

DAVIS, ROBERT E  
Rt 2, Box 3695, Sacramento  
BRIGHTON SAND & GRAVEL PLANT,  
Folsom dist., Au, Ag

DAVIS, W G  
1848 103rd Ave, Oakland  
REDCAP GROUP, Orleans dist,  
placer, Au, Ag

DEEP CREEK TUNGSTEN  
MNG CO  
448 S Doherty Dr, Beverly Hills  
MINE, Mono Co

DEER TRAIL MNG CO  
Gen Del, Yreka  
Gen Mgr: L G Crow  
DEER TRAIL MINE, 12 mi W of  
Yreka, underground, Au, Ag, Pb  
Mine & Cons Engr: Carl W Yates  
25-TON GRAV-FLOT MILL

DEL NORTE MINING CO  
Mojave  
DEL NORTE MINE, Wildrose dist,  
lode, Au

DELL OSSO GOLD MNG CO  
Box 3435, Terminal Annex,  
Los Angeles 54  
DELL OSSO LODE, Calico dist., Au,  
Ag

DERENZO, ANDREW  
Box 485, Lucerne Valley  
LUCKY JOHN LODE, Bellville  
(RD MT) dist, Pb, Ag

DESERT MINE  
366 Parke St, Pasadena  
Opr: A H Smith & H Trehearne  
MINE, Nipton

DESERT TALC & CLAY CO  
629 N LaBrea Ave, Los Angeles  
Pres: R J Schroeder  
VP: Drew Schroeder  
Sec: Hazel Hawkins  
Gen Supt: J N Hamner  
YUCCA GROVE MINE, 23 mi E of  
Baker, underground, talc  
Prod: 10-12,000 tons annually

DEWAR, BENNETT &  
GUYTON  
Eldorado  
INDEPENDENCE MINE, Mother  
Lode dist., El Dorado Co., Au, Ag

DIAZ, REYES & CARRILLO,  
JUAN  
Box 21, Idria  
AURORA MINE, San Bernardino Co,  
Hg

DICALITE DIV, GREAT  
LAKES CARBON CORP  
812 S Flower St, Los Angeles 17  
Pres: George Skakel  
Opr Mgr: E A Harris  
Gen Mgr: George Skakel, Jr  
Purch Agt: T D Moir  
MINE, surface, diatomaceous  
earth  
Engr: D F Dyrmaid

DICKEY EXPLOR CO  
Alleghany  
ORIENTAL LODE MINE,  
Alleghany dist., Au, Ag

DIFFENBAUGH, CLYDE  
Bear Valley  
NELLIE KAHLO LODE, Mother  
Lode dist., Au, Ag

DILTZ ORO GRANDE MNG CO  
414 21st St, Merced  
Opr: J J Fulham  
MINE, Mariposa Co., Au  
Idle

DITCHLINE MINING CO  
Lewiston  
TRINITY RIVER LODE, 1/2 mi NW  
of Lewiston, underground,  
scheelite, Au  
Under devel  
Prod: 1-2 tons per week  
Mine Supt: Tom Coay  
Mine Engr: Alex Nalivaiko  
5-TON GRAV MILL  
Mill Supt: Shorty Spears

D A DOBBINS & ASSOC  
1106 W Isabel St, Burbank  
BRONZE MINE, San Bernardino Co, W

DOHERTY & MORRICE  
Forest Hill  
MARGOLD QUARTZ MINE, Placer  
Co., underground, Au

DONAHUE, LYLE  
Oasis via Big Pine  
TARGET GROUP LODE &  
MILL, Deep Springs dist, W

DOSCHER, CHARLES,  
VISCOVICH, V &  
MILLOESVICH, STEVE  
Pine Grove  
JUMBO LODE, East Belt dist,  
Au, Ag

DONNER, H L  
Milton via Farmington  
DONNER & LOST LOG MINES,  
Calaveras Co., Au  
Idle

DORCH, WILLIAM  
Sawyers Bar  
RAINBOW GROUP, Siskiyou Co,  
placer, Au

DOWELL & FARISS  
Hayfork  
HOME EXTENSION MINE,  
Trinity Co., placer, Au

DRUMMOND MINING CO  
444 40th Ave, San Francisco 21  
Pres: Frank Lintini  
Gen Mgr: W A E Meyer  
DRUMMOND MINE, Box 222,  
Foresthill, Au, Ag  
Foreman: Michael Tanda  
50-TON FLOT MILL  
Under devel

DREW, FRANK  
Johannesburg  
ALPHONSO MINE, Kern Co, W

DUBOIS MINES  
West Point  
Opr: E H Dubois  
LOUISE MARGARET CLAIM,  
E Belt dist, underground, Au

DYSERT, N S  
Sawyers Bar  
EMMA & RAY PLACERS, 9 mi  
from Sawyers Bar, Au  
Under devel

EAGLE MINING CO  
Rt 1, Bishop  
Gen Mgr: Frank Nelson  
EAGLE MINE #1 & 2, 35 mi E of  
BISHOP, Ag, Au, Pb  
MILL

EARLY MORNING MNG CO  
1185 Monterey St, San Luis  
Obispo  
EARLY MORNING MINE, Fresno  
Co., Cr

EASE, HARRY  
Happy Camp  
MARY E LODE, Klamath Ri-  
dist, Au, Ag

EAST RIDGE CO  
631 Shatto Place, Los Angeles 5  
Pres: C E Byrne  
VP: F Moldenhauer  
Sec: L M Smith  
(See Colorado)

EATON, MRS E BURDELI  
Incline  
GOLD STAR LODE, East Belt  
dist, Au, Ag

EDGE CUMBE EXPLOR CO  
281 S Hudson, Pasadena 5  
Pres: Mrs Charlotte Morgan  
VP: C A Haley  
Sec: Arnold Holden  
Treas & Gen Mgr: G H Morgan  
(See Alaska)

EDMONDS, W H  
Raymond  
EDMONDS DREDGE, Chowchilla  
Riv dist, placer, Au, Ag

EDWARDS, R A  
Inyokern  
SNOW WHITE MINE, Kern Co, W

EDWARDS, WILLIAM G  
Johnsville  
FOUR HILLS MINE, Sierra Co,  
underground, Au

EL DIABLO MINING CO  
Box 567, Bishop  
Pres: W A Trout  
Gen Mgr: H O Hahanson  
MINE near Bishop, W  
Supt: C H Olds  
50-TON CONC PLANT, magnetic  
separation

EL DORADO ARGONAUT MINE  
Georgetown  
Mgr: Victor J Pedri  
MINE, El Dorado Co., underground, Au

EL DORADO LIMESTONE CO  
Shingle  
MINE, El Dorado Co., limestone

EL PESO DE ORA, LTD  
Box A, Camarillo  
Owner: Mrs Ester B McDonald  
EL PESO DE ORA MINE, SE of  
Banner, underground, Au, Ag  
Supt: G L Herrington, Sr

ELLIOT, P W  
8451 Slater Ave, Rt 1,  
Huntington Beach  
CRAYCROFT PLACER, Downieville  
dist, Au

ELLIS, L G  
Star Rt, Oro Grande  
PAYCHECKER CLAIM, San  
Bernardino Co., underground, Au, Ag

EMPIRE STAR MINES CO, LTD  
Grass Valley  
Pres: J R C Mann  
VP: Carroll Searls  
Gen Mgr: H H Fitzpatrick  
Asst Gen Mgr: F L Wilson  
Metal: James T Curry  
Elec Engr: Leo Mann  
Sec: H E Dodge  
Mech Engr: Phil Keast  
Safety Engr: C H Plumtree  
Purch Agt: W E Carman  
EMPIRE STAR MINE, Grass Valley,  
underground, Au  
Mine Foremen: E Brokenshire,  
T Thompson, W Wales, Mortor  
White  
400-TON FLOT-CYAN MILL  
Mill Foremen: A Dowdell,  
C Edwards

Assayer: William Feil  
RETORT FURNACE  
(See Newmont Mng Corp, East Sec)

ENNIS, C  
North San Juan  
COME & GET IT CLAIM, Nevada  
Co., underground, Au

ERICKSON, JOHN  
Rt 1, Box 165, Orland  
PILOT MINE, Plumas Co,  
placer, Au  
Under devel

ESCOBAR, MRS MABLE  
Coulterville  
BIG CHICK MINE, Mariposa Co,  
placer, Au

ESTEY, CLYDE E  
Box 453, Camptonville  
SOLIDARITY GROUP & PINE  
FLAT #3 MINES, Yuba Co,  
placers, Au

EUREKA LEAD & ZINC MINE  
Rt 1, Box 89, Glendora  
Owners: F D & H H Shuck  
Ag, Cu, Pb, Zn

FAIR OAKS GRAVEL CO  
4000 Illinois Ave, Fair Oaks  
GRAVEL PLANT, Sacramento Co, Au

FAIRBANKS, L D  
Box B, Daguerre  
DONNA LOY MINE, Inyo Co, talc

FAIRVIEW CHROME MINE  
640 Lane St, Yreka  
Owner: H E Ellickson  
FAIRVIEW MINE, Humburg

FAIRVIEW PLACERS  
Lewiston  
(Joint venture of Sunshine Mng Co,  
The Lehman Corp & The Idaho  
Canadian Dredging Co)  
Owners: Rep & Gen Mgr: H B Murphy  
Purch Agt: A D Soule  
PLACER, 10 mi N of Lewiston,  
8,000 yd bucket dredge, Au, Ag  
Supt: H C Young

FARISS, M M  
Box L, Hayfork  
HOME EXTENSION MINE, Hayfork  
dist, placer, Au, Ag

FEASLER, ARTHUR G  
397 Bartlett Ave, Sunnyvale  
EL DORADO MINE, Sierra Co,  
placer

FELDMAN, FRANK  
Rt 3, Box 783, Porterville  
BIG HOY MINE, Kern Co  
TUNGSTEN KING MINE, Inyo Co, W

FENTON, ORIN  
Groveland  
EUREKA LODE, East Belt  
dist, Au, Ag

FERNANDEZ, FRANK C  
1326 Pine St, Santa Monica  
Gen Mgr: George Greve  
MONO PIUTE RAINBOW MINE,  
16 mi NE of Bishop, underground,  
surface, Au, Ag, Pt  
25-TON GRAV MILL, Piute  
Canyon, under devel

FERRETTI, LEWIS  
633 No Tuxedo Ave, Stockton  
MARGUERITE LODE, Mother Lode  
dist, Au, Ag

FERRO CO  
135 San Vincente Blvd,  
Santa Monica  
IRON AGE MINE, San Bernardino  
Co., Fe

FIDELITY MINE  
Columbia  
Mgr: Wayne Stobough  
MINE, Au, Ag  
Supt: Vernon Ray  
3-TON GRAV MILL

FIFE, E J  
Star Rt, Box 728, Lucerne Valley  
BUCKHORN LODE, Holcomb dist  
HIGH POINT LODE, Bellville dist

FIGUEROA, DAN & SONS  
Rt 1, Box 8, Blythe  
BALD EAGLE LODE, Ironwood dist

FILLIER, EARL J &  
WANKA, LOUIS F  
1312 Produce St, Los Angeles 21  
GOLDEN RIBBON GROUP LODE, Au, Ag  
TEXAS FLAT GROUP LODE, Au, Ag  
KLICKITY KLICK GROUP LODE, Au, Ag  
Potter Ridge dist

- FINN, TED**  
Salmon Forks  
GOOD LUCK MINE, Siskiyou Co., Au
- FISHER RESEARCH LAB, INC**  
1961 University Ave, Palo Alto  
SPREAD EAGLE MINE, 5 mi NW of  
Mariposa, Au  
EMMA #1-2 & EMMA MILLSITE  
(Leased from Brobeck, Phleger &  
Harrison, San Francisco)
- FITZWATER, G W**  
Camp Seco  
PEERLESS PLACER, Calaveras Co., Au
- FLEDDERMAN, A G**  
403 Butte St, Yreka  
FLEDDERMAN MINE, Yreka dist,  
placer, Au, Ag
- FLINTKOTE CO**  
55th & Alameda, Los Angeles  
VOORHEIS MINE, Copperopolis, asbestos  
Idle
- FOOD MACHINERY CHEMICAL  
CORP. WESTVACO CHEM DIV**  
Newark  
QUARRY, San Benito Co, limestone  
(See Wyoming)
- FORD, ALEX**  
Box 311, Yreka  
FRAGA MINE, Yreka dist, placer, Au, Ag
- FORD, M M**  
Box 293, Inyokern  
BIG SUGAR MINE, Kern Co, W
- FOREMAN & FOREMAN**  
Box 175, Darwin  
Pres: L D Foreman  
Gen Mgr: R L Foreman  
DEFENSE MINE, Panamint Springs, 11 mi  
S of Panamint Springs, underground, Pb, Ag  
Under devel
- FORKNER, R L**  
Gen Del, Boonville  
FRENCH BAR MINE, Nevada Co, Au
- FOSS, A L**  
Panamint Springs, Lone Pine  
SURPRISE MINE, 11 mi S of Panamint  
Springs, underground, Pb, Ag, Au
- FOSTER & GLORY TINTIC MINES**  
1130 Niagara St, Burbank  
Owners: Foster Estate & J B Marston  
MINE, Valley Wells, surface, Au, Ag, Cu,  
Pb, V  
50-TON CYANIDE MILL
- FOSTER, CLYDE**  
Nevada City  
SLEEPING BEAUTY LODE, Washington  
dist, Au
- FOSTER, W I, KINKEAD,  
CLYDE & CARTER,  
LAWRENCE**  
P O Box 1544, Trona  
DOODLE BUG GROUP LODE,  
South Park dist, Pb, Ag, Au
- FWLWYER MINING CORP**  
Dyer, Nevada  
ALEXANDER (GREEN MONSTER)  
LODE, White Mt dist, Ag, Zn, Pb, Cu, Au
- FRASER, F W**  
Orleans  
ORCUTT PLACER, Humboldt Co, Au
- FRASEUR, HERB**  
Hayfork  
SUNSET PLACER, Hayfork, Au, Ag
- FRITZ, W A**  
P O Box 497, Trona  
STOCKWELL LODE, Slate Range  
dist, Au, Ag
- FRONTZ, GEORGE M**  
Box 21, Greenwood  
CLYDSDALE MINE, El Dorado Co,  
underground, Au
- FRYE, HARVEY V**  
c/o Inskip Inn, Stirling City  
MONEY MUSK MINE, Butte Co, Au  
Idle
- FULHAM, JOHN J**  
Box 228, Mariposa  
DILTZ LODE, Mother Lode dist, Au, Ag
- FUNK, HAROLD**  
Box 87, Fort Dick  
OLD DOE MINE, Del Norte Co, Cr
- G & G COMPANY**  
J M. Alma F & Clark Gould  
Meadow Valley  
HAZEL PLACER, Edmanton dist, Au, Ag
- GAGE, FRANCIS**  
1537 S Fairfax Ave, Los Angeles  
HI GRADE MINE, lode, Cedar dist, Au
- GALENA LEDGE GOLD MINE**  
c/o Frisbee & Hoogs  
2131 University Ave, Berkeley  
MOHAWK #1 & 2 LODE, East Belt  
dist, Au, Ag  
Idle
- GALLAGHER, FRANK E**  
P O Box 772, Merced  
MARIPOSA LODE, Mother Lode  
dist, Au, Ag
- GAMBELL, S F**  
Junction City  
GOLD DOLLAR MINE, 6 mi N of  
Junction City, hydraulic placer, Au
- GAMBLE, GEORGE**  
1431 Waverly St, Palo Alto  
KNOXVILLE MINE, Napa Co, Hg
- GARCIA, MARINO & KINSELA**  
Middletown  
JAMES CREEK PLACER, Napa Co, Hg
- GARESIO, ALBERT A**  
Downieville Star Rt, Nevada City  
AETNA MINE, 4 mi W of Nevada  
City, underground, Au, Ag, Cu  
Under devel
- GARIBALDI BROS**  
Volcano  
GARIBALDI MINE, Amador Co, Au
- GARIBALDI, TONY**  
Box 146, Pioneer  
EMELAIN QUARTZ MINE, East  
Belt dist, underground, Au
- GARNET DIKE MINE**  
King River Hatchery  
Fresno  
MINE, Fresno Co, W
- GARRETT, RALSTON &  
RALSTON**  
Box 103, Johannesburg  
PIONEER MINE, E of Johannesburg,  
underground, Au  
GRAV MILL
- GASTONQUAY, ERNEST**  
Sierra City  
PRIDE MINE, Sierra Co, placer, Au
- GEIGER, EARL**  
Box 3138, Indio  
DUPLIX LODE, Dale dist, Au, Ag
- GENERAL DREDGING CO**  
Natoma  
Partners: Giddings, Haines &  
Boucher  
PLACER, 2 mi from Folsom,  
dragline, Au, Ag, idle  
GENERAL DREDGE #2, American  
Riv dist, placer, Au, Ag, Pb
- GEORGE, FRANCIS**  
Cecilville  
BLACK HAWK MINE, Siskiyou Co,  
Cr
- GEORGE, W K**  
Sawyers Bar  
DRY GULCH MINE, Siskiyou Co, Cr
- GHEZZI & HARRY**  
158 Tunstead Ave, San Anselmo  
LAZAR LODE, Mother Lode dist, Au
- GIANT LEDGE LEAD &  
COPPER CO, INC**  
c/o Edward E Wilhite, Sec-Treas,  
927 Palm Drive, Colton  
GIANT LEDGE GROUP LODE, New  
York Mts dist, Pb, Cu  
Under devel
- GIDDENS, MAYNARD**  
Nevada City  
MURRAY-REMKE MINE, placer, Au
- GIFFORD, HERB**  
Rt 3, Box 358, Yuma, Ariz  
GRAY POINT #2 LODE, Cargo  
Muchacho dist
- GILES BROS**  
Frederick H & Daniel A Giles  
Alleghany  
GOLD CROWN LODE, Alleghany  
dist, Au, Ag
- GLADDING, McBEAN & CO**  
2901 Los Feliz Blvd, Los Angeles  
Clay
- GLENN, ALBERT F &  
SODERLUND, ALFRED**  
Darwin  
LEE (SILVER REID) LODE, Lee  
dist, Zn, Ag, Pb, Cu, Au
- GLIDDEN CO, DIV 34,  
CALIF-NEV BARYTES  
MINES**  
766 50th Ave, Oakland 1  
Pres: D P Joyce  
Gen Mgr: E L Ralston  
Purch Agt: A A Gibeaut  
BARIUM KING MINE, Battle Mt,  
surface  
JUMBO MINE, Tonopah, Nev,  
surface, barite  
Foreman: Roy McDowell  
(See Central)
- GOBERT, JOHN**  
Box 202, Downieville  
SUNSHINE PLACER, Downieville  
dist, Au
- GOEHRING, A A**  
Oasis, via Big Pine  
KILROY MINE, Inyo Co, W
- GOLD BAR MINING CO**  
Box 10, Altaville  
Mgr: Luke Copanich  
ALTA MINE, Mother Lode dist, Au
- GOLD CHANNEL MINE**  
c/o Donald Read, Box 84,  
Nevada City  
Alleghany dist, placer
- GOLD COIN MNG & MILLING  
CO**  
Greenwood  
GOLD COIN MINE, El Dorado Co,  
underground, Au
- GOLD HILL DREDGING CO**  
311 California St, San Francisco  
Pres & Gen Mgr: J J Coney  
Sec: L H Kerdel  
Purch Agt: E O Perkins  
PLACER PROP on Mokelumne Riv  
in San Joaquin Co, bucketline, Au, Ag  
Supt: H L Coney  
Idle
- GOLD SUGAR GRAND STRIKE  
MINE & MILL LTD**  
Box A, Camarillo  
Pres: G L Herrington  
Sec: Mrs Esther B McDonald  
MINE, 9 mi SE of Julian, underground,  
surface, Au, Ag  
20-TON GRAY MILL
- GOLDEN BEAR MNG CO**  
998 N Western Ave, Los Angeles 29  
MT ALTA GROUP, Pike (Indian Hill)  
dist, placer, Au, Ag
- GOLDEN CENTER MINE**  
7-5 Rowan Bldg, Los Angeles  
Owner: Cooley Butler  
MINE, Grass Valley, Au  
150-TON CYANIDE FLOT MILL
- GOLDFIELD CONS MINES CO**  
1 Montgomery St, San Francisco  
VP & Gen Mgr: E A Julian  
OMEGA MINE, Nev Co, hydraulic, Au  
RED HILL MINE, Trinity Co, Au  
Idle  
(See Ariz and Nev)
- GOOD HOPE MNG CO**  
120 "O" St, Fresno  
PIONEER & GOOD HOPE MINES,  
Tulare Co, W
- GOODHUE, J W**  
Taylorsville  
PILOT MINE, Genesee, Plumas  
Co, surface, undergd, Au, Ag, Cu
- GOODWIN, O F**  
W E Thompson, Iowa Hill  
dist, placer, Au, Ag
- GONZALES, PAUL**  
1499 Ford Ave, San Jose  
WONDER MINE, San Benito Co, Hg
- GORDON, L I**  
6742 1/2 Kraft Ave,  
North Hollywood  
ORE HILL GROUP LODE, Cedar  
dist, Au, Ag
- GOULD, H W & CO**  
1100 Mills Tower, San Francisco 4  
Pres: B A Gould  
Sec-Treas: M B Gould  
Engr: M J O'Boyle
- GLAU MINE, San Joaquin Co**  
Hg  
Idle  
(See Klau Mine, Inyo Co)
- GRAHAM, CHARLES A**  
330 Alexander St, Nevada City  
SELBY HILL MINE, Nevada City, Au
- GRANDVIEW MINING CO**  
14631 Sherman Way, Van Nuys  
CHALCEDONY LODE, 14-15 mi S  
GRANDVIEW GROUP LODE, 14-15  
Pb, Zn, White Mts dist
- GRANITE KING**  
Box 93, Mariposa  
Mgr: Frank Carr  
MINE, Au, Ag
- GRANT & DAVIS**  
c/o Ernest V Grant, Jackson  
HAGERMAN LODE & MILL, East  
Belt dist, Au, Ag
- GRANTHAM, LOUISE**  
1151 Council Ave, Ontario  
RED EAGLE GROUP, Inyo Co, 14-15  
BIG TALC CLAIM, Inyo Co, 14-15
- GREATER 49er PLACER**  
Box 1731, Fresno  
Owner: Andrew Throckm  
MINE, Strawberry Valley, dragline,  
Au
- GREEN, SHERWOOD**  
219 S "D" St, Madras  
ACE PLACER, Madras Co, Au  
JENSEN PLACER, Fresno dist, Au  
ACOSTA PLACER, Holdrege dist, Au
- GREENHORN DREDGING CO**  
Box 892, Auburn  
PLACER, 11 mi S of Placerville  
dragline dredge, Au  
BARKLEY PROPERTY, Yuba Co
- GRIFFIN, R W**  
Box 298, Inyokern  
GOLDEN STAR MINE, Kern Co, Au
- GROSS, KENNETH**  
Barrejo Star Rt, Julian  
KENTUCK MINE, San Diego Co,  
underground, Au, Ag
- GUILDFORD GROUP,  
GOLD MINES**  
Box 191, Placerville  
Owners: L F S Holland & McKinn  
POVERTY POINT, FORTUNA,  
HUMMING, BALTIC, BANTAM, ROSE  
ANITA MINES, 2-4 mi N of Placerville,  
underground, Au
- GUSTY, M J**  
Isabella  
FIRST LANDING, GOOD HOPE,  
ROCLAP POINT MINES, Kern Co, Au
- HALL, ROBERT A**  
Box 65, Douglas City  
AURORA PLACER, Trinity River dist  
Assessment work only
- HANSON, E**  
Gen Del, Forresthill  
BIG CHIEF MINE, Placer Co, Au
- HARDISTY, R L**  
Box 172, Smith River  
MT VIEW MINE, Del Norte Co, Cr
- HARLIS, ROY**  
Big Pine  
EUREKA MINE, Inyo Co, lode
- HARPER, ED F**  
Big Oak Flat  
EUREKA LODE, E Belt dist, Au
- HARPER, J L**  
Patrick's Creek Inn, O'Brien, Ore  
ELK CAMP MINE, Del Norte Co, Cr
- HARRIS, JOHN**  
Redding  
NIMS MINE, Box 297, Yreka,  
Au, Ag, Pb  
Engr: C W Yates  
75-TON GRAY MILL
- HARRIS, MICHAEL**  
c/o Furnace Creek Ranch,  
Death Valley  
KEANE WONDER EXTENSION  
LODE, Chloride Cliff dist, Au, Ag
- HARRIS, P L**  
c/o Furnace Creek Ranch,  
Death Valley  
BLACK IRON LODE, Chloride  
Cliff dist, Au, Ag
- HARTMAN CONCRETE  
MATERIALS CO**  
Box 1632, Bakersfield  
FOX PLANT GRAVEL PIT, Kern  
Riv (Bakersfield) dist, gravel plant,  
Au, Ag

- HARVEY, RAY**  
Box 99, Bishop  
KLAUS MINE, Inyo Co., W
- HARTCHER, DAVID & ARLETTINE, WM**  
Tulare  
BLACK JACK MINE, Siskiyou Co., Cr
- HATHAWAY, O**  
Downsville  
HOT SHOT MINE, Sierra Co., Au
- HATTON & LAMLEY**  
Box D, Red Mountain  
FOUR NO 2 MINE, Kern Co., W
- HATTON, R C**  
Box 4, 8th St, Los Angeles  
MINE, Agua Caliente dist., Au, Ag, Cu, Pb, Zn
- HAYLH MNG & MLG CO**  
Box 14, Highland St, Hollywood  
HISIN VIEW MINE, Kern Co., W
- HAYES, BEN W**  
Box 1055  
HOLDER CR PLACER, Mariposa Co., Au
- HAZEL CREEK MNG CORP**  
Box 2, Main St, Placerville  
MGR: G W A Irvine  
LODE MINE, E Belt dist., Au, Ag, Pb
- HEATHER, HARRY F**  
Box 3, Oak Knoll Ave, Pasadena  
RIGHT OUTLOOK MINE, San Bernardino Co., W
- HEDSTROM, EDWARD**  
Box 4, Merritt Ave, Oakland  
LIVE CANYON MINE, San Bernardino Co., Fe
- BEINS, TED**  
Box 1251, Nancy St, Barstow  
BLUE BELL MINE, Soda Lake dist., Pb, Au, Ag, Cu
- HELMKE, THOMAS & JANSSEN**  
Box 32, Market St, San Francisco  
LAMBERT MINE, Butte Co., Cr
- HENDERSON, F M**  
Box 158, No Orange Grove, Pomona  
ELNORS MINE, Inyo Co., talc
- HERBERT, O A**  
Box 87, Plymouth  
WOLIN PROPERTY, Mother Lode dist., placer, Au
- HERBERT MINES**  
Box 3, Box 150A, Porterville  
TUNGSTEN MINE, Tulare Co., W
- HERMANN, E T & KELLAR, GEO**  
Box 8, Thermal  
H & K MINE, Riverside Co., talc
- HERSH, R J**  
Box 1013, Ruberta Ave, Glendale  
MOHAVE BOY LODE, Silver Mt dist., Au, Ag
- HESS, MARTIN L**  
Box 331, Weldon  
GLOBY HOLE & TUNGSTEN QUEEN, 14 mi S of Weldon, surface, W  
Under devel
- HESS, MAX**  
Box 333, Randsburg  
GOLD COIN MINE, Kern Co., lode, Au
- HIBSPSHMAN, JAMES**  
Mt Bullion  
WOOD PROPERTY, Chowchilla Riv dist., placer, Au
- HIDDEN FORTUNE LODE**  
Owner: John Loring, 378 55th St, Oakland  
Lessee: Harry Gibson, Box 31, Columbia  
MINE, East Belt dist
- HIDDEN VALUE TUNGSTEN CO**  
Box 2700, Rudlong Ave, Los Angeles  
HIDDEN VALLEY MINE, San Bernardino Co., W
- HIGH PEAK TUNGSTEN MINE**  
Bishop
- HIGHTOWER, CLINTON**  
P O Box 712, Central Valley  
PLAIN VIEW LODE, Au, Ag  
BLACK ROSE LODE, Au, Ag  
MULE MOUNTAIN LODE, Au, Ag, lgs (Centerville) dist
- HITCHCOCK, JOHN S**  
Glennville  
HILLSIDE MINE, Kern Co., W
- HOEFFLER, I W**  
Box 34, Crescent Mills, Plumas Co  
DAG-IAN MINE, undergd, Au  
Supt: John L Richmond  
20-TON GRAV MILL
- HOERNER, OSCAR**  
Nashberry  
CLIPPER MT MINE, Kern Co., W
- HOLIDAY, ELMER**  
Gen Del, Madera  
CASAHANG MINE, Madera Co., placer, Au
- HOLLIDAY MINES**  
Box 133, "J" St, Crescent City  
MINES, Del Norte Co., Cr
- HOLMAN & POWELL PAVING CO**  
Box 2980, Alessandro St, Los Angeles 39  
SOUTH SLOPE MINE, Monterey Co., Cr
- HOLMSTAKE MNG CO**  
Box 308, Wintehaven  
Pres & Gen Mgr: K A Holmes  
CARGO MUCHACHO GROUP, Imperial Co., underground, Au, Ag, W  
Supt: Les Hardy  
100-TON CYANIDE MILL
- HORNER, W S**  
Box 1135, India  
BLACK EAGLE LODE, Eagle Mt dist., placer, Pb, Au, Ag, Cu  
EAGLE M
- HORSE SHOE MINE**  
Box 21, "B", Cazadero  
HORSE SHOE LODE, Mother Lode dist., Au, Ag
- HORTON, V K**  
Box 1, Box 361A, Modesto  
VICTORY MINE, Fresno Co., W
- HOSSETTER, EDWARD J**  
Helena  
BIG FLAT PLACER, Trinity Riv dist., Au
- HOWARD, D W**  
Box 1012, Glenoaks Blvd, San Fernando  
SUNSHINE LODE, Dale dist., Au
- HOWELL BROS**  
Box 1, Leonard L Howell  
Box 71, Raymond  
DREDGE operating on Hal Williams Ranch, Chowchilla Riv (Raymond) dist., Au, Ag
- HOWIE MINING CO**  
Box 200, 205 S Beverly Dr, Beverly Hills  
Pres: Robert Hodge  
Gen Mgr: Russ Probst  
HOWIE GROUP MINES, Nevada Co., underground, placer, Au
- HOWLAND, W P**  
Box 443, K St, Taft  
HOWLAND MINE, Monterey Co., Hg
- HUGHES-VERTIN LIME CO**  
Box 231, Auburn  
Limestone, Placer Co
- HUGHES, PAUL**  
O'Neals  
MT VIEW-LAST CHANCE-LODE, Hildreth dist., Au, Ag
- HUNTER, BEV**  
Olancho  
LEMOYNE CLAIM, Inyo Co., Ag, Pb
- HUNTLEY INDUST MINERALS**  
Box 303, Bishop  
Pres: W H Huntley  
Sec-Treas: L G Hummel  
PACIFIC PYROPHYLITE MINE, 18 mi NW of Bishop, surface, asbestos, clay, W  
Foreman: D T Davis  
Prod: 100 tons
- HYLAND, GEORGE**  
Box 6105, Castle Dr, Oakland II  
IRELAN MINE, Sierra Co., underground, Au
- IDAHO MARYLAND MINES CORP**  
Box 362, Russ Bldg, San Francisco  
Pres & Gen Mgr: Albert Crase  
VP: Granville Borden  
Asst Gen Mgr: Max Bechhold  
Sec: C L Allan  
Elec Engr: Edward M White  
Geol: C J Lyden  
Mech Engr: Joseph Glennon  
Safety Engr: Jack Clark  
Purch Agt: L J Twitchell  
IDAHO & BRUNSWICK MINES.
- 1-2 1/2 mi NW of Grass Valley, underground, Au, Ag**  
Prod: 600 tons  
Mine Supt: R K Whitmore  
Mine Foreman: D W Henry  
Mine Engr: E C Whiting  
1,000-TON FLOT-GRV-CYAN MILL  
Mill Foreman: C A Berryman, O R Peterson  
Assayer: O H Ellerman
- IGO MINING CO**  
Box 1412, Redding  
Pres: R B Tupper  
Gen Mgr: M E Howe  
BIG WYKE MINE, Igo, Au, Ag, Pb, Zn  
YANKEE JOHN MINE, Au, Ag, Pb  
Under devel
- INDIAN GROUP MINE**  
Box 104, Walsh, Grass Valley  
Pres: R B Lewis  
MINE, 13 mi NE of Nevada City, underground & placer, Au  
Under devel  
25-TON GRAV MILL
- INDUSTRIAL MINERALS & CHEMICAL CO**  
Box 6th and Gilman Sts, Berkeley  
MINE, Nevada Co., grinding, barite  
CLAY PITS, Inyo Co., barite
- INTERNATIONAL METAL CHROME CORP**  
Box 1026, Chorro St, San Luis Obispo  
Cr
- INYO MARBLE CO**  
Box 726-732 E 20th St, Los Angeles II  
Pres: R D Penny  
VP: D H Dunn  
Sec: G W Mead  
Treas: A W Thompson  
CONS INVO PROPERTIES, Dolomite via Lone Pine, surface, marble, limestone & dolomite  
75-TON GRAV MILL  
Supt: D H Dunn
- INYO MINING CO**  
Box 2702, Glendale Blvd, Los Angeles  
VICTOR & VICTORIA MINES, Inyo Co., W
- INYO SAIL SULPHUR CO**  
Box 310, Pacific St, Bakersfield  
CHATER CLAIMS, Inyo Co., S
- IRON DUKE MINING CO**  
Box 1991, E Glenoaks Blvd, Glendale II  
Pres: Grover Kihorny  
IRON DUKE MINE, 13 mi N of Hornitos, surface, Au  
GRAV MILL, DEWATERING PL  
Idle
- ISABELLA MINING CO**  
Weldon  
W
- ISABELLA TITANIUM MINES, INC**  
Box 383, Tujunga  
MINE, Los Angeles Co., Ti  
Idle
- IVES, E E**  
Box 774, Big Pine  
CLEVELAND MINE, Inyo Co., Au, Ag
- J & W MINING CO**  
Corvallis, Ore  
Partners: Norman Johnson & Chas S Wilson  
TYSON CHROME MINE, Gasquet, 20 mi NE of Crescent City, Cr  
Prod: 45 tons  
Supt: William Whippo  
Cons Engr: K O Watkins
- JACKSON, A E**  
Box 1614, Trinity, Redding  
BRANCH PLACER, Shasta Co., Au, Ag
- JACKSON, R H**  
Box 1112, Midpines  
EARLY MINE, Mariposa Co., W  
MEXICAN DIGGINGS MINE, Mariposa Co., underground, Au
- JAMES, F D**  
Lone Pine  
LUCKY STRIKE MINE, Alabama Hills dist., lode, Au
- JENSEN, ANTON M**  
Box 456, Desert Center  
PROSPECTUS LODE, Chuchawalla dist., Au
- JERSEY LILLY MINE**  
Randsburg  
(Leased to S W Grow)
- JOHNS-MANVILLE**  
Box 22, E 40th St, New York 16, N Y  
LOMPOC MINE, Lompoc, surface, diatomaceous silica  
(See East)
- JOHNSON, FLOYD**  
La Porte  
WINKEY MINE, Sierra Co., placer, Au
- JOHNSON, JESSE**  
Gen Del, Redwood City  
ALMA CLAIM, Washington dist., placer, Au, Ag
- JOHNSON, LANCE**  
La Porte  
WINIFRED MINE, Packer Flat dist., placer, Au, Ag
- JOHNSON, LOUIS**  
La Porte  
ST ELEMO MINE, Sierra Co., placer, Au
- JOHNSON MANGANESE MNG CO**  
Box 255, California St, San Francisco II  
Owner: A W Johnson  
GAMLIN MINE Eldorado Co., Au  
COFFEE GULCH MINE, Amador Co., Au
- JONES, ANDREW B**  
Box 284, Columbia  
HIDDEN TREASURE LODE, Mother Lode dist., Au
- JONES, R D**  
Box 408, Henderson St, Grass Valley  
JUDE LODE, Washington  
(No Bi sm) (old) dist., Au, Ag
- JONES-THOMPSON, RAYMOND**  
Box 171, Barstow  
TUNGSTEN KING & MOONLIGHT CLAIMS, San Bernardino Co., W
- JORDAN, ROBERT C**  
Box 277, Ahwanee  
JORDAN DREDGE, Mariposa Co., Au
- JOUBERT PLACER MINE**  
Saxvers Bar  
Owner: Louis J Joubert  
HYDRAULIC PLACER, Au, Ag  
(Leased by Strawacker & Hartnett)
- JUDGE HYDRAULIC MINE**  
Saxvers Bar  
PLACER, Siskiyou Co., Au
- JULIAN, E A & THORKELOSON NORMAN**  
Turlock  
HIGGINS MINE, Downville dist., placer, Au, Ag
- JUST ASSOCIATES**  
Box 726, Story Bldg, Los Angeles  
MINE, San Bernardino Co., W
- KAISER ALUMINUM & CHEMICAL CORP**  
Box 1924, Broadway, Oakland 12  
Pres: Henry J Kaiser  
VP: D A Rhoades  
MGR: R E Knight  
NATIVIDAD DOLOMITE QUARRY, Box 1531, Salinas, open pit & bucketline, dolomite, lime, Mg  
Supt: D M Kerr  
GRAV MILL FURNACE, Permanente  
Prod: 125,000 tons yearly
- KAISER STEEL CORP**  
Box 1924, Broadway, Oakland 12  
Pres: Henry J Kaiser  
Exec VP: E E Trefethen, Jr  
VP & Gen Mgr: Jack L Ashby  
VP & Treas: Atwood Austin  
Gen Supt: B N Dagan  
Supt, Raw Materials: K B Powell  
Supt, Metall Dept: W A Depew  
Works Mgr: G B McMeans  
Purch Agt: G W Kelly  
EAGLE MT MINE, Box 158, Eagle Mt, 15 mi N of Desert Center, Riverside City, surface, Fe  
Prod: 6,200 tons  
Mine Supt: J G Hansen  
Mine Foreman: W A Horton  
Mine Engr: George Huseman  
876,000-TON BLAST FURNACE, Fontana  
Div Supt, Iron & Steel: C H Lohrey  
Supt: J D Sausamann
- KALBAUGH, CLAYTON**  
F R M Way, Redding  
THURSDAY MINE, Cinnabar dist., placer, Au, Ag, Cr
- KANE, GROVER**  
Box 123, Randsburg  
OPERATOR CONS LODE, Randsburg dist., Au
- K C COLUMBIA MINES, INC**  
c/o Walter A Scofield, P O Box 302, Garibaldi, Oregon  
K C COLUMBIA GROUP LODE, Au, Ag, Pb  
MILL, Klamath Riv dist



**KERR, GEO S**  
250 Clarke St., Bishop  
TIME ROCK MINE, Inyo Co., W

**KEYSTONE MINE**  
Agent: H G O'Hanlon for Martin Area,  
Sutter Creek  
KEYSTONE LOPE, Mother Lode dist.  
Au, Ag, Cu

**KIMBROUGH, R C**  
8804 Compton Ave., Los Angeles 2  
SUNSHINE LOPE, Dale dist., Au, Ag

**KEANE EXTENSION MNG CO**  
Box 224, Beatty, Nev  
Owners: Michael & James Harris  
MINE, Death Valley, Inyo Co., under-  
ground, Au, Pb, Fe, Ag  
SMELTER, lead & iron

**KELLY, T C**  
Hayfork  
KELLY MINE, Trinity Co., Au

**KENNEDY MINERALS CO, INC**  
2932 E Olympic Blvd., Los Angeles 23  
ECLIPSE, WARM SPRINGS, KATZ,  
Los Angeles Co.  
TALC AND DEATH VALLEY, Inyo Co.  
CLAY PIT, Inyo Co., clay

**KENNEDY MINES**  
c/o W H Kirklin, Scott Bar  
KENNEDY MINE, Siskiyou Co.,  
placer, Au

**KENYON, HARRY B**  
Box 149, Cottonwood  
HIMMINGBIRD MINE, Shasta Co.,  
underground, Au, Ag  
(Leased from Joseph Giles, Cupertino)

**KING, J & HOFFMAN, E**  
Box 379, Oro Grande  
LUCKY 13 LOPE, Au, Ag

**KING SOLOMON LEASE**  
c/o E B Atkinson, Box 101  
Johannesburg  
YELLOW ASTER MINE, Kern Co.,  
underground, Au, Ag  
KING SOLOMON MINE, Randsburg  
dist., Au, Ag  
MILL, Randsburg dist.

**KIRBY, CLYDE & THOMAIN, GENE**  
Sawyers Bar  
THOMAIN MINE, Salmon Riv. dist.,  
placer, Au, Ag

**KIRKPATRICK MINING CO**  
Box 1919, Sacramento  
KIRKPATRICK MINE, Downville  
dist., placer, Au

**KIRKPATRICK**  
Rt 2, Yreka  
100 to 10 & 11th MINES, Siskiyou  
Co., Au, Ag

**KIRTCHEW, R E**  
Box 783, Big Pine  
CRATER GROUP, Inyo Co., S

**KLAU MINE, INC**  
1100 Mills Tower, San Francisco 4  
Pres: B A Gould  
Sec-Treas: M B Gould  
HELEN MINE, Lake Co., Hg, under-  
ground  
LA JOYA MINE, Napa Co., Hg, idle  
VIRGILIA MINE, Plumas Co., Au, idle  
STANDART MINE, Plumas Co., Au,  
idle

**KLONDYKE MNG & MLG CO**  
c/o Edward Benefield  
Box 103, New Pine Creek, Ore  
KLONDYKE GROUP LOPE, High-  
Grade dist., Modoc Co., Au, Ag

**KNEPPER, L W**  
Idria  
NORTH STAR MINE, San Benito Co.,  
surface, Hg

**KNOXVILLE MINE**  
Monticello  
Owner: G E Gamble & W V Wilson  
MINE, Monticello, Hg  
FURNACE  
Supt: T S Schriber

**KOEST, GEO W**  
Box 85, Darwin  
ALLIANCE & SILVER DOLLAR MINE,  
Inyo Co., talc

**KORFIST, JERRY**  
Baker  
MINE, 33 mi NE of Baker, under-  
ground, fluor spar  
Under devel

**KRETA, JOHN M**  
Box 251, Randsburg  
BIG GOLD AND TUNGSTEN, Kern Co.,  
W

**KUBON & JURVA**  
419 N Emily, Anaheim  
RAND MINE, Kern Co., Glenville, W

**KUONEN, FRANK**  
1501 W 11th St., Santa Ana  
OLD SPANISH-VICTORY-DREAMER  
GROUP, Morongo dist., Pb, Ag, Zn  
Assessment work only

**KYLE, ROGER Q**  
Box 302, Globe, Ariz  
MANGANESE & TREMOLITE MINES,  
22 mi N of Blythe  
Under devel

**LA COLORADO MINE**  
c/o J M Mueller, Winterhaven  
LA COLORADO LOPE, Cargo  
Muchacho dist., Au, Ag, W

**LA GRANGE GOLD DREDG**  
1805 Mills Tower, San Francisco 5  
Pres: Henry Eickhoff, Jr  
Sec-Treas: Jefferson Koolittle  
PLACER, La Grange, dragline, Au, Pt,  
Ir  
Idle

**LAKE COUNTY MINERALS, INC**  
2321 Waverly St., Oakland  
MINE, Kelseyville, Lake Co., S

**LAKEVIEW MANGANESE MINES**  
Crescent Mills, Calif  
STAR MINE, Plumas Co., Mn

**LANI, VICTOR R**  
Lone Pine  
PENNSYLVANIA LOPE, Cerro Gordo  
(Swansea) dist., Zn, Pb, Au, Ag

**LANDSEN, JOHN A**  
268 Orange St., Auburn  
LANDSEN DREDGE, Auburn dist.,  
placer, Au, Ag

**LARRIER & WALKER**  
c/o J E Larrieu, Penner  
HACKBERRY (DENVER) GROUP  
LOPE, Signal dist., Au, Ag

**LARIOS, JOE P**  
Box 76, New Idria  
SAMSON PEAK MINE, San Benito  
Co., Hg

**LAURIDSON, LAUREN C**  
Rt 2, Box 1340, Fair Oaks  
JAMES O'BRIEN MINE, El Dorado Co.,  
placer, Au

**LAVA CAP GOLD MNG CORP**  
River Road, Ansonia, Conn  
Pres: Leslie H Jockums  
Sec-Treas: Harry C Powsley, Jr  
MINE, Nevada City, Au, Ag  
400-TON CYANIDE FLOT MILL  
Idle

**LAVERONI, T A**  
Rt 1, Sonora  
JOSEPH MINE, Tuolumne Co., Au

**LAWRENCE, JOSEPH S**  
Pine Grove  
HAPPY JOE & JUMBO CLAIMS,  
Amador Co., underground, Au

**LAWSON, A & E KLAERS**  
3595 Arrowhead, San Bernardino  
TARANTULA LOPE, Silver Mt  
dist., Au, Ag

**LEE, FRED R**  
4385 New Jersey St., San Diego  
NORTH STAR MINE, W

**LEWIS, FOSTER L**  
2307 Shasta St., Redding  
STARVATION MINE, Trinity Co.,  
underground, Au

**LIDDICOAT GOLD MINES CO**  
Rt 4, Box 27, Greenwood  
Pres: J L Liddicoat  
VP: L G McClain  
Sec: Lillie Liddicoat  
GRIT MINE, underground, Au  
Engr: J F Siegfried  
60-TON GRAV FLOT MILL  
Idle

**LIGHT HOUSE M & M CORP**  
Box 308, Barstow  
MINE, San Bernardino Co., W

**LILLIE, C H**  
Apple Valley  
BONANZA DOME MINE, San  
Bernardino Co., W

**LINCOLN CLAY PROD CO**  
INC  
Box 367, Lincoln  
Clay, Placer Co

**LINCOLN, G R**  
16018 Strathern St., Van Nuys  
ORO GRANDE LOPE, Kern Riv dist.,  
Au, Ag

**LINCOLN GOLD DREDGING CO**  
Redding  
BLUE JAY MINE, Shasta Co., Mn

**LINKHARD, R A**  
E MESSENGER  
Kirby, Ore  
CHROME MINE, Siskiyou & Del  
Norte Co

**LIPPINCOTT LEAD MINES**  
Box 1811, Santa Ana  
Owner: George Lippincott  
LEAD KING MINES, Death Valley,  
Ag, Pb, Zn  
Prod: 50 tons  
Supt: Gene Taylor  
25-TON GRAV FLOT MILL, furnace  
Supt: Neuman Belk  
SMELTER, Bonnie Clare, Nev

**LITTLE, J Q**  
Clark Mt Station, Nipton  
CARBONATE KING MINE, San  
Bernardino Co., Ag, Pb, Zn  
Idle  
(Owned by Crystal Cave Mining Co)

**LITTLE, ROBERT**  
Rt 1, Box 75, Downville  
MARY JANE PLACER MINE,  
Downville dist., Au, Ag

**LITZ, IRVING M & JOSEPH**  
SILVER  
8895 Wilshire Blvd., Beverly Hills  
KALLY MINE LOPE, Clark Mt dist.,  
Pb, Zn, Au, Ag, Cu

**LIVE OAK MINES, INC**  
Sand Canyon, Rt 1, Saugus  
Pres & Gen Mgr: Chailoner Thompson  
Counsel: H C Ellis  
MINES, 12 mi SE of Saugus, surface,  
limonite, magnetite, zirconium  
Met: S Sklarew

**LLEWELLYN, LLOYD**  
Box 62, Ridgecrest  
DAN PIER MINE, Rademacher dist.,  
lode

**LOG CABIN MINES CO**  
431 W 7th St., Rm 826, Los Angeles  
Gen Supt: F C Cassidy  
LOG CABIN MINE, Leevining, Au, Ag  
150-TON AMAL CYANIDE MILL  
Idle

**LONE STAR MINING CO**  
Box 8, Claraville  
Mgr & Part: J E Moreland  
Asst Mgr & Part: W E Moreland  
Partner: Mattie Moreland  
LONE STAR MINE, Au, Ag, W, dolomite  
MILL

**LONG, J H**  
Box 185, Victorville  
GOLD BUG LOPE, Bellville dist.,  
Au, Ag

**LONG, W R**  
12707 Matteson Ave., Venice  
ANNEX GROUP LOPE, Silurian  
dist., Ag, Au, Pb

**LONGHORN TALC MINES**  
Box 733, Big Pine  
Talc, Inyo Co

**LOOMIS, L W**  
Box 328, Placerville  
L & L MINE, W of Placerville,  
surface, Au  
Prod: 300 tons

**LORENTZ & SWINGLE**  
Plymouth  
Mgr: C J Lorentz  
LORENTZ EXT PLACER,  
Cosumnes Riv dist

**LORENZ, WOODY J**  
Box 364, Lone Pine  
BIG FOUR LOPE, Wildrose dist.,  
Pb, Zn, Ag, Cu, Au

**LOVE, DONALD F**  
Ludlow Box B  
BAGDAD-CHASE MINE, 8 mi S of  
Ludlow, underground, surface,  
Au, Ag, Cu  
Met: Jalmar & Jackson  
Prod: 500 tons monthly

**LOW, F GILMAN**  
Box 224, Ahwahnee  
NEW DEAL MINE, Au, Ag

**LOWRY, GLENN C**  
Box 227, West Point  
EMILY MINE, Amador, undgrnd, W

**LUCKY GOLD HILL CO**  
645 Gray Ave., Yuba City  
Pres: I B Everett  
VP: Charles Lavin  
Sec-Treas: Harold Lavin  
Gen Mgr: Harry Lavin  
LUCKY GOLD HILL, Yuba Co.,  
J La Porte, placer, Au, Ag,  
400-TON MILL, under devel

**LUNDY, COL C**  
Blairden  
JAMISON GROUP, Lake Co.,  
Johnsville dist., Au, Ag

**MACCO CORP**  
Drilling Fluid Div.,  
14409 S Paramount, Ag  
Paramount  
BUCKHORN MINE, Bonanza Co.,  
under devel

**MACHEN, H E**  
North San Juan  
BRIDGEPORT MINE, Bonanza Co.,  
under devel

**MADER, LAURENCE J**  
Box 350, Grass Valley  
W M C PLACER, Nevada City, Ag, Au

**MADISON, MRS H E**  
Woodleaf Star Rt., Foothill  
EL SEGUNDO PLACER, Foothill  
dist., Au, Ag

**MAGEE MERCURY, INC**  
4163 Piedmont St., Oakland  
Pres: H H Magee  
VP & Engr: B C Austin  
Sec: H B Bucker  
MINE, Guerneville, Hg  
Mgr: T A Monahan  
100-TON ROTARY FURNACE

**MAID OF ORLEANS MINE**  
Alleghany  
Owners: Wolf & Assocs  
GOLD MINE  
Supt: George Burdette  
Under devel

**MAIN, M L**  
Box 617, Weaverlyville  
HICKEY PLACER, Trinity Riv  
dist., Au, Ag

**MALONE MINE**  
Box 223, Mariposa  
Oprs: De La Muz & Johnson  
MINE, Mariposa Co., Au, Ag

**MARALL, L S & V H**  
Forest Hill  
CHROME MINE, Placer Co., Cr

**MARBLE TUNGSTEN MINE**  
Bishop  
MINE, 13 mi SW of Bishop, W  
Supt: A H Peterson & John Utter  
Under devel

**MARKON, ALEX**  
Sawyers Bar  
ANNA JOHNSON & SURPRISE LOPE  
Salmon Riv dist., Au, Ag  
Assessment work only

**MARKS, LESTER, JOHN A**  
SHIELDS & DE HANKE  
c/o Placer County Bank, Auburn  
JOSEPHINE LOPE, Mother Lode  
dist., Au, Ag

**MARTER MINING CO**  
143 N Rosemont Blvd., San Gabriel  
Pres: L B Martin  
Gen Mgr: R M Richter  
MARTER-WHITE MINE, San  
Bernardino Co., surface  
Prod: 500 tons  
LUCERNITE MINE, San Bernardino  
Co., Mn CaCO<sub>3</sub>  
Prod: 100 tons

**MARQUIS MINE**  
115 Ericson Rd., San Mateo  
Opr: J M Marquis  
MINE, Calaveras Co., underground,  
Au  
Under devel

**MARTEN & MARTEN**  
Box 352, Barstow  
FAIRVIEW MINE, San Bernardino  
Co., W

**MARTIN & KREBS**  
145 W Hillcrest, Monrovia  
MINE, Tulare Co., W

**MARTIN, G D**  
Sheep Ranch  
SHEEP RANCH LOPE, East Bell  
dist., Au  
Idle

**MARTIN, LENN O**  
Darwin  
EMPRESS LOPE, Case dist., Au

**MASSIEA, E F**  
Star 80, Nevada City  
**COMET PLACER**, Nevada Co., Au

**MAST, R. S**  
Tule 90, Nevada City  
**SALMINE MINE**, underground, Au

**MATHERLY, ELLIS B**  
Lone  
c/o M. T. Matherly, Box 84,  
Davenport, Wash.  
**MATHERLY DREDGE**, Mother  
Lode 300, placer, Au, Ag

**MATTHEWS, PEARCE &  
UNDERWOOD**  
Hinsdale  
**ANTELOPE MINE**, 33 mi SE of  
Hinsdale, underground, Cu

**McALLISTER, H F**  
Box 142, Victorville  
**BLUE SILVER LODE**, Cu, Ag, Au

**McBROOM, E A**  
Cecilville  
**PAINSWORTH PLACER**, Salmon  
Riv dist, Au, Ag

**McCONNELL, S W**  
Box 36, El Dorado  
**NASHVILLE MINE**, placer, Au

**McCREE, M E**  
French Corral  
**MADPONE CLAIM**, French  
Corral dist, placer, Au, Ag

**McCULLY, JOE**  
Box 53, Darwin  
**EMPRESS MINE**, 8 mi E of Darwin,  
underground, Pb, Zn, Ag, Cu, Au  
**BIG POOR MINE**, 15 mi E of Darwin,  
Panna Mt dist, Pb, Zn, Ag  
**OLD DEPENDABLE MINE**, 23 mi  
SW of Furnace Cr Ranch, undgd, Sb, Ag

**McFARLAND & HULLINGER**  
23 Poughurst Ave, Tooele  
**MINNETTA LODE**, Modoc dist,  
Pb, Au, Ag, Cu, Zn  
(Leased from Amer Smelt &  
Ref'n Co)

**McINERNEY, J RALPH**  
Rt 1, Box 34A, San Bernardino  
**WHITE DOLLAR MINE**, W

**McLAUGHLIN CORP**  
Hayfork  
**MINE**, Trinity Co, Mn

**McWHORTER, E**  
Rt 1, Bishop  
**JIMMIE LINDA MINE**, Inyo Co, W

**MEANS, L R**  
Box 717, Yreka  
**OSGOOD MINE**, placer, Au

**MEGRAN, J J**  
Denny  
**HIGHLAND MINE**, Trinity Riv  
dist, placer, Au, Ag

**MERIAN, A T**  
Strawberry Valley  
**JUMBO MINE**, Plumas Co, Au

**MERRICK, E P**  
112 N Riverside Ave, Medford, Ore  
**ALLISON MINE**, Siskiyou Co, Cr

**MERRICK, R C**  
4632 47th St, Sacramento  
**LOST CAMP PLACER**, Blue  
Canyon dist, Au, Ag

**MID-STATE DREDGING CO**  
c/o A A Hammer, Douglas Flat  
**TOMA GRANITIA RANCH**, East  
Belt dist, placer, Au, Ag

**MILLER, J F**  
Box #83, Lucerne Valley  
**DOUBLE EAGLE LODE**, Lava  
Bed dist, Pb, Zn, Au, Ag, Cu

**MILLER, GEORGE & JOHN**  
Box 681, Sonora  
**GOLDEN STAR LODE**, E Belt  
dist, Au

**MILLER & WARREN**  
Lone Pine  
Gen Supt: Louis Warren, Jr  
Geol: D L Davis  
**DURHAM & FERNANDO MINES**,  
• Darwin, 3 mi SE of Darwin,  
underground, W, scheelite  
Mine Supt: Mack Tilley  
**90-TON GRAY MILL**, 4 mi E of  
Darwin  
Mill Foreman: J W McCully

**MINERAL MATERIALS CO**  
1145 Westminster Ave, Alhambra  
Partners: A S Vinell & Clair W  
Dunton  
Sec: N Vincent  
Engr: Thomas J Thorne  
**ATLAS SILICA MINE**, 2 mi E of  
Oro Grande, surface, silica  
Prod: 750-1,000 tons  
Mine Foreman: C H Manga  
**VULCAN IRON MINE**, Keiso, Fe  
Prod: 1,000 tons  
**SILVER LAKE IRON MINE**, Box 63,  
Bakers, 20 mi N of Baker, surface,  
Fe, under devel  
Prod: 750 tons  
**STARBRIGHT MINE**, 25 mi N of  
Bartow, W, idle  
**NICHOLAS PEAK MINE**, 5 mi N of  
Weldon, underground, W, under devel  
**VICTOR PYROPHYLLITE MINE**,  
San Bernardino Co, talc  
(See Nevada)

**MINING DEVELOPMENT CO**  
c/o Stanley Wolfersdorf  
Rt 1-B, Bartow  
**WAR EAGLE GROUP LODE**, Lead  
Mt dist, Pb, Au, Ag

**MINONA MINING CO**  
c/o Emer L Patton, Supt  
Rt 2, Box 1208, Grass Valley  
**ESPERANCE MINE**, French Corral  
dist, placer, Au, Ag

**MITCHELL, STEVENS &  
DRZEW BROS**  
Randsburg  
**CALIF CLAIM**, Kern Co, under-  
ground, Au, Ag  
Idle

**MODGLIN, ANDREW**  
La Porte  
**WILD ROSE PLACER**, Poker Flat  
dist, Au

**MODRELL, GLENN**  
Camache  
**BROWN PROPERTY**, Mokelumne  
Riv dist, placer, Au, Ag

**MOHAWK MINES, INC**  
Nipton  
Pres: T W Peterson  
VP: Lorin Reber  
Sec & Gen Mgr: S C Greenwood  
Treas: R N Day  
**MOHAWK MINE**, 65 mi S of Las Vegas,  
underground, surface, Pb, Cu, Ag, Zn

**MOLYBDENUM CORP  
OF AMERICA**  
Gen Mgr: H D Bailey  
Asst Gen Mgr: Russell Wood  
Metal: A M Wilson  
**MT PASS MINE**, Nipton, 60 mi SW  
of Las Vegas, Nev, underground &  
surface, rare earth metals, barite  
Prod: 125 tons  
Mine Supt: John Martin  
**150-TON FLOT MILL**,  
Assayer: John Carr  
Mill Supt: G H Lee  
(See Colo, New Mex & East)

**MOJAVE MNG & MLG CO**  
Mojave  
**CUSTOM MILLING**, Au, Ag

**MONUMENTAL MINES**  
520 F St, Eureka  
Oprs: Matthews & Nelson  
**MINE**, 7 mi W of O'Brien,  
surface, Au, Ag  
Under devel

**MOONLIGHT MINING CO**  
Coulterville  
**MINE**, Mariposa Co, undgrnd, Au

**MOONLIGHT MINES OREGON  
LTD**  
W M Smith, R E Powell &  
F C Petsch  
15 E St, No Lakeview, Ore  
**MOONLIGHT GROUP LODE**, Hi  
Grade dist, Modic Co, Au, Ag

**MOORE, H B**  
Box 755, Nevada City  
**JERSEY SLIDE**, French Corral  
dist, placer, Au, Ag

**MORGAN GOLD MINING CO**  
Georgetown  
Mgr: George P Morgan  
**MINE**, Garden City, Au  
Under devel

**MORNING GLORY MINE**  
Panamint City, Death Valley  
W

**MORNING GLORY MNG CO**  
201 So Irving Blvd, Los Angeles 4  
**MORNING GLORY LODE**, Wild Rose  
dist, Ag, Cu, Pb

**MORNING STAR MNG CO**  
c/o George L. Gary,  
Byington Bldg, Reno, Nevada  
**MORNING STAR LODE**, Monitor  
dist, Au, Ag

**MORRIS RAVINE MNG CO**  
Box 7, Oroville  
Pres & Gen Mgr: J H Sharpe  
VP: Roy A Hundley  
Sec: J R Peterson  
**MINE**, 6 mi NE of Oroville,  
underground, Au  
Under devel

**MORRISON, W D**  
Box 1187, Yuma, Arizona  
**LITTLE BUCKAROO LODE**,  
Pajmaster dist, Pb, Ag

**MOUNTAIN COPPER CO,  
LTD**  
230 California St, San Francisco 4  
Gen Mgr: L T Kett  
Asst Mgr: J G Hootely  
Purch Agt: S D Dadds  
Gen Supt: C W McClung  
**HORNET MINE**, 15 mi NW of Redding,  
underground, Fe  
Supt: T B Bagley  
Foreman: R Calhoun  
Engr: Albert Parr  
**HORNET CRUSHING PL**,  
Prod: 1,000 tons

**MOUNTAIN GOLD DREDGING  
CO**  
Sutter Creek  
Pres: M J Garibaldi  
Gen Mgr: C R Garibaldi  
**PLACER**, 2 mi E of Valley Springs,  
dragline, Au  
Mech Engr: Bill Teller

**MOUNTAIN KING MILL & MINE**  
410 Thorne Ave, Fresno  
Pres: C W Stewart  
**MINE**, Copperopolis, Au, Ag  
**700-TON AMAL FLOT MILL**,  
Supt: T B Rice  
Engr: H E Bush  
Idle

**MT DIABLO MINE**  
2108 Tower Petroleum Bldg,  
Dallas, Texas  
**MINE**, Contra Costa Co, Hg

**MT GAINES MINING CO**  
Hornitos  
**60-TON AMAL FLOT MILL**, Au, Ag  
Mgr: J L Dynan  
Mine Foreman: A J Meagher  
Mill Foreman: C S Guest  
Assayer: T W Molten

**MT RAYMOND MINES**  
Box 777, Madera  
Owners: Smith & Bradford  
**STAR & BILEDGO GROUPS**, near  
Madera, Au, Ag, Cu, Pb, Zn

**MT SHASTA ASBESTOS CO**  
Mt Shasta  
**EDDY CREEK MINE**, Shasta Co,  
asbestos

**MT STATES URANIUM CO**  
Box 829, Bishop  
**RED HILL MILL**, W

**MT VIEW LEAD MINE**  
Independence  
Mgr: Pritchett & Slater  
**MINE**, Inyo Co, Ag, Pb

**MT VIEW MINING CO**  
c/o Clifford N Black  
Yettam  
**MT VIEW LODE**, Camp Wishon  
dist, Zn, Cu, Pb, Au, Ag

**MULTI MINES, INC**  
2550 E Olympic Blvd, Los Angeles 23  
**MINE**, Los Angeles Co, talc

**MURRAY, HARRY**  
Box 232, Nevada City  
**PLACER**, Nevada Co, Au

**MUTH, TED**  
Somes Bar  
**RIVERSIDE PLACER**, Siskiyou Co, Au

**NAT'L LEAD CO, BAROID  
SALES DIV**  
830 Ducommun St, Los Angeles  
**HECTOR MINE & PLANT**, Newberry,  
underground, bentonite  
Supt: Jack Herford  
**EL PORTAL MINE & PL**, El Portal,  
underground, wet grinding of barytes  
Supt: R B Spitzer  
**MERCED MILL**, Merced, dry grinding  
of barytes  
(See Nev, So Dak, Tex, Central & East)

**NATOMAS COMPANY**  
407 Forum Bldg, Sacramento  
Pres & Gen Mgr: R G Smith  
VP: Louis Sutter  
Sec: Wanda Durkee  
Asst Gen Mgr: Cyril Thomas  
Gen Supt: Calvin Sears  
**PLACER MINE**, 20 mi E of Sacramento,  
6 bucket dredges, Au  
Prod: 65,000 cu yds  
(See Colorado and Nevada)

**NELSON, FRANK**  
Rt 1, Bishop  
**WESTWARD EAGLE #2 LODE**, Fish  
Springs dist, Au, Ag, Pb, Zn

**NELSON MINE**  
Box 124, Eureka  
Opr: Dayton Murray  
**PLACER MINE**, 6 mi N of Orleans, Au  
Idle

**NEWA MINING CORP**  
3433 W 64th St, Seattle, Wash  
**ROGERS-GENTRY LODE**, Neenach  
dist, Au, Ag  
MILL

**NEW CHAMPION MINING CO**  
West Point  
**CENTENNIAL MINE**, underground,  
Au, Ag, Pb  
Supt: H G O'Hanlon, Jr  
Foreman: Dean Aghetti  
**FLOT MILL**,  
Supt: R H O'Hanlon  
Idle

**NEWCOMB, ZELMA**  
Downieville  
**NEWCOMB MINE**, Sierra Co, Au

**NEW ERA MNG & MLG CO**  
Big Pine  
Mgr: W C Hove  
**NEW ERA MINE**, Inyo Co, underground,  
Au, Ag  
Idle

**NEW IDRIA MNG & CHEM CO**  
38 Sutter St, San Francisco 4  
Pres: Gordon I Gould  
VP: E L Elliott  
Sec & Purch Agt: Carl S Balch  
**NEW IDRIA QUICKSILVER MINE**,  
Idria, San Benito Co, 163 mi SE of  
San Francisco, underground, Hg  
Prod: 200 tons  
Mine Supt: C Hyde Lewis  
Mine Foreman: Wes Shaddock  
**400-TON MILL**

**NEW JAMISON MINE**  
Box 128, Johnsville  
Mgr: C H Smith  
**LODE & PLACER**, Johnsville dist  
Idle

**NEW PENN MINES, INC**  
c/o Edward Oshier, Mgr  
Camp Seco  
**PENN LODE**, West Belt dist, Cu, Zn  
Ag, Pb, Au

**NEWMAN, OTTO & SONS**  
Box 1, Foresthill  
**SKUNK GULCH LODE**, Michigan  
Bluff dist, Au, Ag  
MILL

**NICHOLS MINE**  
c/o C G Scharf, Bishop  
W

**NIELSON, J L**  
Rt 1, Box 275A, Grass Valley  
**QUAKER HILL MINE**, You Bet dist,  
placer  
Assessment work only

**NOBLES, ERNEST**  
Raymond  
**MERRICK BROWN PROP**, Madera Co,  
dredge placer, Au, Ag  
Idle

**NORMAN, J T**  
Cathay  
**MINE**, Mariposa Co, undgrnd, Au

**NORTHWESTERN MINING CO**  
Box 3191, Seattle, Wash  
Owner: Alfred W Peeler  
**ROULDER GULCH GROUP**, Siskiyou  
Co  
**HYDRAULIC PLACER**, Sawyers Bar,  
Au  
Supt: Richard T Bendi  
Idle

**NOONDAY COPPER MNG CO**  
c/o Towet & Howell, 464 Main St,  
Placerville  
**NOONDAY LODE**, West Belt dist,  
Cu, Au, Ag, Zn

**NOVAK, ANGUS**  
212 Townsend St, Grass Valley  
**ATKINS LODE**, Grass Valley-Nevada  
City dist, placer, Au, Ag

- NUROC CORP**  
Mariposa  
MT GAINES MINE, cleanup lode,  
Hunter Valley dist.  
Idle
- OAK HILL MINES**  
c/o William C Wolfe, Rt 2, Box 1710,  
Grass Valley  
MINES, Au, Ag
- OBARR, MARCUS E**  
1841 Freeman Ave, Long Beach 4  
LEON LOBE, Pinarate dist, Au, Ag
- OCCIDENTAL MINING CO &  
ORO MINING CO**  
c/o L L Anderson, Foresthill  
OCCIDENTAL MINE, Iowa Hill dist,  
placer, Au, Ag  
ORO MINE, Michigan Bluff dist,  
placer, Au, Ag
- OCEAN VIEW MINE**  
Big Sur  
Mgt: John R Lowe  
MINE, Monterey Co, Au, Ag
- O'DONNELL, JOHN**  
326 E Main St, Grass Valley  
KATE HARDY MINE, Sierra Co,  
underground, Au  
BALL MILL
- OLIVER, L E**  
Sawyers Bar  
ANNA JOHNSON LOBE, Salmon Riv  
dist, Au, Ag
- OLSON, ROY S**  
1178 Walnut Ave, Redding  
BATTAMS PROP, Shasta Co, dredge,  
Au, Ag  
Idle
- ORA DEL LOMA CO**  
Del Loma  
FRENCH BAR PLACER, Trinity Riv,  
bucket highline, Au  
WASH PLANT
- ORA DEL LOMA CO**  
Del Loma  
FRENCH BAR PLACER, Trinity Riv  
dist, bucket highline, Au  
WASH PLANT
- OREGON GULCH DREDGING CO**  
c/o Ernest P Smith, Ft Jones  
LA GRANGE MINE, Trinity Riv dist,  
placer, Au, Ag
- ORO FINO CONS MINES CO**  
Box 432, Auburn  
Pres: G A Nugent  
Treas: J C Kempvance  
ORO FINO MINE, 4 mi from Auburn,  
underground, Au, Ag  
Idle
- ORIGINAL 16 TO 1 MINE, INC**  
1611 Russ Bldg, San Francisco 4  
Pres: A N Lewis  
Sec: Jack Masfield  
Gen Supt: C A Bennett  
MINE, Alleghany, Au, Ag  
Foreman: W V Van Doren  
150-TON CONC & AMAL PLANT  
Mill Foreman: J B Hunley
- ORSINI, W A & GLEN PARKE**  
Box 18, Summit City  
NO STAR GROUP, Shasta Co, Cr
- OWL SPRINGS CO**  
1079 Leighton Ave, Los Angeles 37  
Pres: Harold W Orwig  
Sec: George Orwin  
MANGANESE MINES, San Bernardino  
Co, underground, surface, Mn  
Assay: Edward Eisenhauer, Jr  
50-TON CONC & SINTERING PL
- PACIFIC ATLANTIC METALS**  
312 Central Bldg, Pasadena  
Chairman: W W Kaye  
Pres: E C Neckerman  
COPPER BASIN, GOLD PEAK, COW-  
BOY, EDITH & BLACK HAWK MINES,  
Caliente, Au, Ag, Pb, Zn  
Supt: Gold Peak & Cowboy:  
Willard Hale  
Supt: Black Hawk: H A Hukill  
PLOT MILL & REDUCTION PL
- PACIFIC CLAY PRODUCTS CO**  
306 W Ave 26, Los Angeles  
PITS, Amador, Calaveras, Los  
Angeles, Riverside & San Joaquin  
Counties, clay
- PACIFIC COAST AGGREGATES**  
400 Alabama St, San Francisco  
ROCKFIELD GRAVEL PLANT, Friant  
dist, Au, Ag, sand and gravel
- PACIFIC COAST BORAX CO,  
DIV OF BORAX CONSOL, LTD**  
630 Shatto Place, Los Angeles 15  
Pres & Gen Mgr: J M Gerstley
- VP & Asst Gen Mgr: P J O'Brien  
Gen Supt: L L Fusby  
Safety Engr: L F Clegh  
Purch Agt: J C Walker  
BORON MINE, Boron, 35 mi E of  
Mojave, underground, borate ores  
Mine Supt: V C Rogers  
Asst Mine Supt: W M Wamsley  
Mine Foreman: P A Conte  
BORON MILL  
Mill Supt: E D Lemon  
Asst Mill Supt: O T Vary
- PACIFIC COAST MILL &  
MNG CO**  
1012 Highland Ave, National City  
BAGDAD CHASE TAILINGS,  
Barstow dist, Cu, Au, Ag
- PACIFIC LESTER LIME  
PRODUCTS CO**  
Box 468, Santa Cruz  
Limestone
- PACIFIC MINERALS CO, LTD**  
337-10th St, Richmond  
MINE, El Dorado Co, talc
- PANAMINAS, INC**  
c/o Eureka Corp, Eureka, Nev  
Pres: G W Tower  
Gen Mgr: G W Mitchell  
ADAMSON MINE, Bishop, W
- PANAMINT TUNGSTEN MINES**  
Death Valley  
MINE, Inyo Co, W
- PANOCH VALLEY  
QUICKSILVER MINES**  
Box 31, Paicines  
LOVE OAK & VALLEY VIEW MINES,  
San Benito Co, Hg
- PARKER MNG & MLG CO**  
Box 202, Barstow  
Pres: F A Parker  
VP: J C Porter  
Sec-Treas: H T Parker  
Geol: Eugene Lawrence  
Engr: Wade Whaley  
WHITE DOLLAR MINE, 14 mi S of  
Digdall, surface, dozer, W  
Prod: 40 tons  
40-TON GRAV MILL, 2 mi W of  
Barstow
- PARRA, MANUAL G &  
JOHN ALTOMERANO**  
Rt 4, Box 3189A, Sacramento  
FORTUNA-ESPERANZA-CUBE GROUP  
LOBE, Mother Lode dist, Au, Ag
- PARTAIN, Z L & ASSOCIATES**  
Box 764, 713 9th St, Sacramento  
TRAP LINE, Michigan Bluff dist,  
placer, Au, Ag  
Idle
- PAULSON, C W**  
789 Bridgeway, Sausalito  
NIAGARA SUMMIT MINE, Shasta  
Co, underground, Au
- PAYNE, ANDREW W**  
439 Arletta St, San Jose  
BEACH SANDS, San Mateo (Beach)  
dist, placer, Au, Ag
- PAYNE, THOMAS**  
Dobbin  
PAYNE MINE, Yuba Co, Au
- PEARCE, ARTHUR S & ASSOC**  
Hollister  
ANTELOPE LOBE, Panoche dist,  
Au, Ag, Cu
- PEDRO, WILLIAM R**  
Rt 1, Box 518, Sonora  
STONEWALL CLAIM LOBE, Mother  
Lode dist, Au, Ag
- PEERLESS DEVELOPMENT CO**  
235 Bancroft Ave, San Leandro  
Pres & Gen Mgr: B K Melville  
PEERLESS MINE near Greenville,  
underground, Au
- PENDLETON, W B**  
Box 131, Foresthill  
AMERICAN HILL MINE, Last Chance  
dist, Placer Co, Au, Ag
- PERKINS, I STANLEY**  
Rt 4, Box 4818, Paradise  
NEW ERA MINE, Butte Co, placer, Au
- PERLITE INDUSTRIES, INC**  
Tecopa  
Pres & Gen Mgr: Charles H  
Harrington  
VP: Kenneth B Hysong  
Treas & Mgr: William E Hysong  
VP & Mine Supt: W R McGowan  
S & Mill Supt: Ralph C Harrington  
GREY EAGLE MINES #1, 2, & E,  
Tecopa, surface, perlite  
Asst Mine Supt & Purch Agt: B B  
Bedeynak
- Asst Mill Supt: Charles Waugh  
Mill Foreman: John Wheat  
Mech Engr: Walton R Manuel  
100-TON FURNACE
- PERMIT MINING CORP**  
Midpines  
PERMIT & NUTMEG MINES,  
Mariposa Co, underground, Au  
Idle
- PESTLE MINE**  
P O Box 94, Randsburg  
Owner & Opr: S M Mingus  
MINE, underground, Au  
Under devel
- PETERS, JOHN L &  
L E EARLY**  
Box 593, Bishop  
MOONLIGHT MINE, Inyo Co, W
- PETERSON & UTTER**  
Bishop  
MARBLE MINE, Inyo Co, W
- PETERSON, CONLIN,  
POWALL ESTATES**  
Columbia  
FORD LOBE, Mother Lode dist, Au, Ag
- PETERSEN MINE**  
Box 29, Pine Grove  
Owner & Opr: H P Livingston  
MINE, 1 mi W of Pine Grove, under-  
ground, Au, Ag  
Prod: 25 tons  
Mine Foreman: Ray Hoh  
25-TON GRAV MILL  
Mill Supt: William F Petersen
- PETERSON, NELSON**  
5250 Bennet Valley Rd, Santa Rosa  
OSCAR HAGEN CLAIM MINE,  
Mariposa Co, underground, Au
- PETERSON, T B**  
P O Box 186, Randsburg  
LUCKY BOY MINE, 2 mi S of  
Randsburg, underground, Au, under devel  
TUNGSTEN MT GROUP MINE, 8 mi W  
of Randsburg, underground, W
- PETTY, W J & ASSOCIATES**  
Inyokern  
PRAVIN GROUP, Inyo Co, W
- PHELAN, TOM**  
Alleghany  
SEYMOUR LOBE, Alleghany dist, Au, Ag
- PHILLIPS, H J**  
Rt 1, Box 577, Chase Rd, El Cajon  
PHILLIPS MINE, 2 mi SE of El Cajon,  
underground, Au, Cu, Pb  
AMAL-GRAV MILL  
Under devel
- PHILLIPS, W C**  
North San Juan  
BUCKHORN PLACER MINE, Au, Ag,  
under devel  
SPIKE RUCK PLACER, Dobbin  
dist, Au, Ag
- PIERCE BROS**  
595 2nd St, Morro Bay  
HARD FACE GROUP, San Luis  
Obispo Co, Cr
- PINCHBACK, W H, JR**  
2244 Los Nietos Rd, Whittier  
CUSTOM MILL, W
- PINNACLE MINING CO**  
Independence  
BOUND VALLEY MINE, Inyo Co,  
10 mi NW of Bishop, underground, W  
GRAV MILL
- PINNACLE TUNGSTEN CO**  
5658 Wilshire Blvd, Los Angeles  
HOUND VALLEY MINE, Inyo Co, W
- PIPER, EMMA**  
Box 152, Groveland  
MACK LOBE, East Belt dist, Au, Ag
- PIONEER PYROPHYLLITE  
PRODUCTS**  
Box 686, Chula Vista  
Pres & Gen Mgr: Farrar Matthews  
Sec: Dorothy Benner  
Elec Engr: Jim Vine  
Mech Engr: Robert Wilson  
MATTHEW MINE, near Del Mar,  
surface, fire clay, pyrophyllite  
Mine Foreman: Elliott Williams  
300-TON MILL, dry air flotation
- PITTSBURGH PLATE  
GLASS CO**  
Bartlett  
Mgr: George D Dub  
MINE at Bartlett, Inyo Co, chemicals  
Asst Supt: Clark Dodge  
Chief Mech: O M Knowles  
Mast Mech: G E Snyder
- PLACERVILLE GOLD MNG CO**  
Box 191, Placerville  
Pres: Reginald Owen  
Sec-Treas: L F S  
DAPHIC, OREGON HILL  
HARMON, EXCELSIOR  
A MISSOURI FLAT MINE  
A placer, Au  
GRAV-FLOT MILLS
- PORTEOUS, HERMAN**  
- Lone  
APEX MINE, Calaveras  
underground, Au
- POWATAN MINING CO**  
Woodlawn, Baltimore  
MINES, Shasta Co, sand  
No output
- PRESLEY, IRVIN**  
Rt 1, Box 94-1, Le Grand  
HANNER SAND & GRAVEL  
Le Grand dist, gravel  
Au, Ag
- PRICE CREEK MINERALS CO**  
Big Bar  
Pres & Gen Mgr: Harry L Moore  
Sec: Eleanor B Holmes  
Gen Supt: Grover Sebaugh  
Metal: M Quist  
BIG BARBARIAN MINE, Sonora  
Big Bar, underground, Zn, Cu, Ni, Ti  
Under devel
- PROVIDENCE TUNGSTENE  
GOLD MINES, LTD**  
210 Post St, San Francisco  
Pres & Gen Mgr: A Vahoun  
Sec: R Freeman  
PROVIDENCE MINE, HAZARD  
Sonora, underground, Au  
150-TON MILL, Tautoum
- PURINTON, L A**  
398 W San Fernando St, San Jose  
DREDGE on Fine Gold Creek  
Haidrith dist  
Idle
- QUARTZ HILL MNG CO, INC**  
104 E Keystone Ave, Woodland  
Pres: L J Cuno  
VP: C Garibotti  
Gen Mgr: R B McGinnis  
Gen Supt: J A Vinson  
QUARTZ HILL MINE, Scott Bar,  
surface, Au, Ag  
Mng Engr: H B Thompson  
Elec Engr: E E Miller  
Assay: H Bauerstock  
500-TON GRAV MILL  
Supt: E M Smith  
Idle
- QUASEBARTH, A F**  
Box 172, Wintehaven  
ALPINE MINE, 3 mi N of Ogilby,  
underground, surface, Au, Ag  
CYANIDE GRAV MILL, under devel
- QUICK, HARRIS HALL**  
Box 162, Randsburg  
MINNESOTA & JOSEPHINE MINES,  
Kern Co, underground, Au, Ag  
Idle
- QUINN, BERT**  
Box 71, Darwin  
SILVER SPOON LOBE, Camdenton, Ag
- QUINN, J R**  
Sloughhouse  
PLACER, Cosumnes Riv dist, Au  
Under devel
- QUINONEZ, J**  
235 2nd St, Hollister  
EL REY MINE, San Benito Co, Hg
- RAISEK, L A**  
Newberry  
IMPERIAL LOBE, Lava Bed dist, Ag
- RAMEY, GEORGE**  
Caliente  
MT VIEW MINE, Kern Co, W
- RAMSEY, CHARLES**  
Camptonville  
OVERSIGHT PLACER, Camptonville  
Au
- RALSTON, R E**  
Box 103, Johannesburg  
PIONEER MINE, San Bernardino Co,  
underground, Au  
Under devel
- RAY, FRED**  
French Gulch  
BRUNSWICK LOBE, French Gulch  
dist, Au
- RAYMOND, NED E**  
Box 12, Westend  
OPHIR LOBE, Slate Range dist,  
Pb, Zn, Ag, Au



**REAL, DONALD**  
Box 16, Nevada City  
CITY OF SIX & GOLDEN BEAR  
MINE, 1 mi S of Downieville, lode  
underground & placer, Au

**RED CORRAL MNG CO**  
410 N Broadway, Los Angeles 14  
OLD ROSE LODE, Holcomb  
(Bear Lake) dist, Zn, Ag, Pb

**RED LGG**  
Star Rt, Santa Barbara  
Mgr: W G Osborne  
MINE, Inyo Co, Au, Ag, Pb

**RED HILL MILL**  
Bishop  
SMELTING & REDUCTION, W

**RED INK MINING CO**  
7214 Sepulveda Blvd, Van Nuys  
WHITMORE MINE, Mojave dist,  
lode, Au

**RED PORPHYRY MINE**  
c/o H R Tuttle, Hilt  
MINE, Siskiyou Co, Au

**RED WING MNG & MLG**  
Ridgecrest  
Pres & Gen Mgr: Fred Risely  
VP: C C Scharheuberg  
YELLOW TREASURE MINE,  
Ridgecrest, Au, Ag, Cu  
Engr: A M Brooks  
Foreman: P A Liebel  
Met: Ed Eisenhauer

**RECKER, H J**  
P O Box 181, Winterhaven  
BLACK MT LODE, Paymaster  
dist, Cu, Au, Ag

**REEDER, W W**  
Klamath River  
REEDER & INGRAM MINES, Klamath  
Riv dist, lode & placer, Au

**REEL, ROY R**  
Schilling  
GRIZZLY BEAR MINE, Shasta Co,  
underground, Au

**REUSS, R F**  
Box 72, Smith River  
PAYDAY MINE, Del Norte Co, Cr

**REWARD MNG & MLG CO**  
c/o N B Lescher & Son  
14932 Delano, Van Nuys  
REWARD MINE, Independence dist,  
Inyo Co, Pb, Ag, Au, Cu  
Lessee: Dick Bright, Independence

**REX MINE PARTNERS**  
c/o Clyde C Adams, Box 97, Kelso  
REX LODE, Providence dist, Au, Ag

**REX MINING CO**  
Box 623, Carson City, Nev  
Pres: J C Skottowe  
VIRGINIA & JOSEPHINE MINES,  
Coulterville  
Engr: G S Kearney  
Under devel

**RHODE, JOHN**  
Quincy  
GOLD LODE, 4 mi N of Quincy,  
underground, Au

**RICHTER, WM & SONS**  
Rt 2, Box 400, Oroville  
PLACER, dragline-dredge, Au  
Prod: 15,000 yds monthly

**RIEUNCHE, GEORGE**  
Rt 2, Box 514, Acampo  
COOK PLACER, Calaveras Co, Au

**RINCONADA QUICKSILVER**  
Box 374, Santa Margarita  
Owner: G R Bell  
MINE, open pit & underground, Hg, Mn  
50-TON FURNACE

**RIVER PINE MNG CO**  
141 Battery St, San Francisco 11  
RIVER PINE DREDGE, Mother Lode  
dist, placer, Au, Ag

**RIVER ROCK INC**  
345 35th St, Oakland  
Mgr: B M Dolan  
GRAVEL PLACER, Merced Co, Au

**RIZZARDINI, A**  
Box 352, Randsburg  
BIG DYKE MINE, Kern Co, under-  
ground, Au, Ag

**RIZZARDINI & WILKINSON**  
Box 106, Johannesburg  
FLORENCE MINE, Kern Co,  
underground, Au, Ag

**ROBERTSON, RUTH**  
Box 475, Grants Pass, Oregon  
CYCLONE GAP MINE, Siskiyou Co, Cr

**ROUBLE, LAWRENCE**  
2167 Marshall Way, Sacramento  
STARBUCK PLACER, El Dorado Co, Au

**ROWE, MULLINIX & BUEHLER**  
1355 Sunset Ave, Pasadena 3  
Pres: W N Rowe  
Gen Mgr: W C Buehler  
Sec & Purch Agt: Jeanne Mullinix  
REGAL HILL GROUP, Newburg  
Springs, underground, surface,  
bucket dredge, Au, Ag, Cu, Pb, V  
10-TON FLOT MILL  
Supt: D C Hare  
Asst Supt: Dick Lanier

**ROYAL DRIFT MINING CO**  
Box 76, Magalia  
Pres: J W Turner  
MINE, Magalia, underground, Au  
Under devel

**RUSSELL, GEORGE W**  
Isabella  
MAMMOTH MINE, underground  
10-TON STAMP MILL  
Under devel

**S H & S MINING CO**  
926 SW Sixth St, Grants Pass, Ore  
Cr

**S & M MINERALS CO**  
Big Pine  
FRACTION MINE, Inyo Co, S

**SAGELAND MNG & MLG CO**  
5223 Wilshire Blvd, Los Angeles  
W

**SAIN, L J & ASSOC**  
Box 342, Randsburg  
BLUEBIRD MINE, Kern Co, W

**SALMON RIVER MINES CO**  
Callahan  
Pres & Gen Mgr: E C Latham  
Purch Agt: V W Peterson  
TRAIL CREEK MINE, Au  
50-TON FLOT MILL  
Under devel

**SAN GABRIEL VALLEY  
PLACERS**  
1237 S Greenwood Ave, Montebello  
Owner: Robert A Riggs  
MINE, 2 mi W of Azusa, placer,  
aggregate plant byproduct, Au, Ag

**SARATOGA SPRINGS TALC  
CO**  
Box 45, Baker  
Talc, San Bernardino Co

**SARDONYX MINE**  
Johannesburg  
Opr: J L Foisie  
Sh

**SARGENT, A M**  
Welson  
DONNIE QUARTZ MINE, Kern Co,  
underground, Au, Ag

**SARITA MILLING CO**  
Box 763, Bridgeport  
Pres: Louis W Cramer  
Sec-Treas: A M Buranck  
Gen Supt: Page Blakemore, Jr  
CHEMUNG, SARITA MINES, 8 mi  
NE of Bridgeport, underground,  
surface, Au, Ag  
90-TON CYANIDE MILL  
Under devel

**SAVERCOOL CLAIMS**  
Greenville  
Owner: Kenneth Murray  
Au

**SCALES MINE**  
c/o Charles W Thacker,  
Strawberry Valley  
MINE, Poverty Hill dist, placer  
Au, Ag

**SHEELITE MINING CO**  
Box 32, Big Pine  
W

**SCHROEDER MINES**  
Box 169, Mariposa  
MINE, 12 mi N of Mariposa,  
underground, Au  
20-TON MILL

**SCHULTZ, FRANCIS W**  
Box 428, Greenville  
COMEBACK MINE, 9 mi W of  
Greenville, placer, Au  
Under devel

**SCIOCHETTI, LOUIS**  
Box 637, Hollister  
JUMPER MINE, San Benito Co, Hg

**SCOTT, J H CO**  
Merchants Exch Bldg, San Francisco  
WASHINGTON MINE, French Gulch, Au  
75-TON FLOT MILL

**SCHWOERER, LOWELL F**  
Box 22, Vallecito  
RED HILL LODE, Mother Lode dist,  
Au, Ag

**SCOTT, JAMES I**  
743 Locust St, Redding  
MURPHY LODE, Forest Glen dist, Au  
TRIPP PLACER, Shasta dist, Au, Ag

**SEAGAR, C L & W HILTON**  
Box 712, Oridale  
TUNGSTEN V MINE, Kern Co, W

**SECURITY GOLD MNG CO**  
Downieville  
BIG BOULDER PLACER, below  
Gold Valley, Au  
Under devel

**SECURITY MINING CO**  
c/o W C Ennis, Mgr.  
No San Juan  
BOSS LODE, French Corral dist,  
Cu, Au, Ag

**SHADOW MT MINES**  
c/o Edna McHenry, Nipton  
MINE, San Bernardino Co, Ag, Pb

**SHAMROCK MINING CO**  
729 Forum Bldg, Sacramento 14  
LAST CHANCE LODE, Washington  
(No Bloomfield) dist, Au, Ag

**SHANNON & PIERSON**  
Big Pine  
CLEVELAND MINE, Inyo Co,  
underground, Ag, Au

**SHARP, R B**  
Bear Valley  
LUCKY BOY MINE, Mariposa Co,  
underground, Au

**SHARPE, M L**  
Box 144, Weott  
SHARPE DREDGE, operating on  
Fred Green property, Foresthill dist,  
placer, Au, Ag  
Idle

**SHAWNEE MINES**  
1421 Salem St, Chico  
Owner: Robert P Bonnie,  
Louisville, Kentucky  
Gen Mgr: Fred A Willis  
MINES, operating, leasing, quartz &  
placer gold, chrome properties

**SHEEN, W R**  
Box 172, Lone  
JOSEPH BARNES PROP, Lone dist,  
placer, Au

**SHERMAN PEAK MNG CO**  
Box 583, Kernville  
SHERMAN PEAK & HILLTOP MINES,  
Tulare Co, underground, surface, W  
90-TON GRAV MILL  
Under devel

**SHOEMAKER, O H**  
Trinity Center  
BUCKEYE PLACERS MINE, 2 mi W  
of Trinity Center, surface, placer

**SHOOTING STAR TUNGSTEN CO**  
1458 Alber St, No Hollywood  
MINE, San Bernardino Co, W

**SHORE, FRANK**  
Rt 2, Sonora  
SHORE MINE, Tuolumne Co,  
underground, Au

**SHOREY, D & R KEMP**  
Box 13, Greenville  
NEW MACHINE MINE, El Dorado Co,  
placer, Au

**SHOUSH, L T & GEO HEDRICK**  
San Gabriel  
PURE QUILL MINE, San Bernardino  
Co, W

**SHULTS BROS**  
Box 127, Medford, Ore  
MINE, Patrick's Creek, Hg

**SHUPENKO, JOE**  
12-36 Glascoe Place, Hawthorne  
J JUNEAU LODE, Needles dist,  
Pb, Ag, Cu

**SIERRA COPPER CO**  
c/o Roy C Mead, 920 Burchett St,  
Glendale  
DONNER LODE, West Belt dist,  
Au, Ag, Cu, Zn

**SIEBERT, PAUL**  
10521 Jardine St, Sunland  
MAGNOLIA MINE, Kern Co, W

**SIERRA MONARCH GOLD MNG**  
709 10th St, Richmond  
SIERRA MONARCH LODE, Sierra  
dist, Au, Ag, under devel  
SHAMROCK GROUP, Sierra City  
dist, Au, Ag, Cu, under devel

**SIERRA TALC & CLAY CO**  
5309 Randolph St, Los Angeles 22  
MINES, Keeler, Tecopa & Shoshone,  
Inyo Co  
TALC MINE, San Bernardino Co  
MINE, Saline Valley & Ubeheite dist

**SIEVERS, P F**  
Box 24, Clements  
MOKEI UNNE PIT MINE,  
San Joaquin Co, placer, Au

**SILICATES CORP**  
230 Park Ave, New York, NY  
MINE, Inyo Co, clay

**SISKON CORP**  
c/o H B Chessner, Box 889, Reno  
SISKON LODE, Klamath Riv dist,  
Au, Ag, Cu

**SKARTVEDT, S K**  
8808 Madison St, La Mesa  
INDIAN CAMP MINE, Inyo Co,  
asbestos  
Under devel

**SKINNER, W V**  
625 Muir Ave, Lone Pine  
LE MOYNE LODE, Le Moyne dist,  
Pb, Ag, Cu, Au

**SLAPP, J C & W T JOHNSON**  
Rt 2, Box 80, Visalia  
SHEEP CREEK MINE, Tulare Co, W

**SMITH, E B**  
Raymond  
DAULTON LODE, Daulton dist,  
Cu, Au, Ag, Pb

**SMITH, HAROLD D**  
P O Box 344, Twenty-nine Palms  
IVANHOE LODE, Dale dist, Au, Ag  
MILL

**SMITH & SPELL**  
Box 347, Twenty-nine Palms  
ORO MEGA MINE, San Bernardino  
Co, underground, Au, Ag, Pb  
Idle

**SMITH, ROBERT H**  
Box 110, Johnsville  
FOUR BIT MINE, Plumas Co,  
placer, Au

**SMITH & POLSON**  
c/o Harry D Smith,  
142 W Willow St, Stockton  
SYLVIA GROUP LODE, Wildrose  
dist, Ag, Cu, Pb

**SNAPP, ELMORE**  
Rt 2, Box 778, Merced  
LITTLE STAR LODE, E Belt dist,  
Au, Ag  
Under devel

**SNELLING GOLD DREDGING**  
Snelling  
DREDGE, Merced Co, Au, Ag  
Idle

**SNOW STORM PLACER**  
Columbia  
PLACER, Tuolumne Co, Au

**SNYDER, D A**  
Rt 1, Box 12, Ashland, Ore  
GRANITE MT LODE, Klamath Riv  
dist

**SNYDER, VERNE**  
Raymond  
LEW REGAN PROP, Madera Co, Au

**SONOMA QUICKSILVER MINES**  
593 Market St, San Francisco  
Pres: H D Tudor  
VP: E P Halloran  
Sec: E B Menary  
MT JACKSON-GREAT EASTERN  
MINE, 4 mi N of Guerneville,  
underground, Hg  
Supt: James Morris  
150-TON GOLD FURNACE  
Supt: H F Larson  
Prod: 125 tons

**SONORA MARBLE  
AGGREGATES CO**  
356 Church St, San Francisco  
GUARRIES, Tuolumne Co, limestone

**SOUTHERN CALIFORNIA  
MINERALS CO**  
320 So Mission Rd, Los Angeles  
Owner: W K Skeroph  
Gen Mgr: Charles F Joy  
Purch Agt: Dan Tash  
DEATH VALLEY AREA TALC MINE,  
Shoshone, talc  
Mine Supt: Ben Gomez  
75-TON AIR FLOT MILL, Los Angeles  
Mill Supt: Glen Hodges

**SOUTHERN CROSS MINE**

Box 78, Columbia  
Gen Mgr: Charles M Bryan  
Owners: Grant, Bryan & Foster  
MINE, 14 mi NW of Columbia,  
underground, Au

**SPANISH MINE**

100 Palm Drive, San Rafael  
Owner: Louis R Moretti  
MINE, Nevada Co, surface, baryte  
Under devel

**SPAULDING, L B**

Box 13, Ramona  
W

**SPECIMEN MINE**

c/o Joe Costa, Bear Valley  
MINE, Mariposa Co, Au, Ag

**STANDARD ROCK CO**

1412 E Washington, Stockton  
Mgr: W J Nemie  
GRAVEL PIT & GOLD PLACER,  
Nemie Ranch, Oakdale dist

**STEPHENS, A E**

Box 175, El Dorado  
INDEPENDENCE MINE, under-  
ground, Au

**STEINHOFF, HUGH**

Box 762, Nevada City  
RAINBOW BAR GROUP, 6 mi N of  
Graniteville, underground & placer, Au  
Under devel

**STEVENSON & HORRELL**

c/o L C Stevenson, Independence  
H & S PLACER, Kearnsarge  
(Waucho) dist, Au, Ag

**STEWART, R A**

Sawyers Bar  
HAYWIRE PLACER, Salmon Riv  
dist, Au, Ag

**STOCK, HARRY**

Sead Valley  
PORTUGUESE MINE, Siskiyou Co,  
placer, Au

**STOCKTON HILL MINE**

Box 949, Grass Valley  
Opr: Ross W Chamberlain  
MINE, underground, Au  
Supt: G W Metzger  
Foreman: D M Chapman  
Under devel

**STRAWBERRY TUNGSTEN**

MINES, INC  
1739 Terrace Ave, Fresno 3  
Pres: A J Jessen  
Gen Mgr: David D Baker  
Sec: Paul L Johnson  
Gen Supt: M C Richardson  
Purch Agt: W F Bieser  
STRAWBERRY MINE, 35 mi N of  
Bass Lake, underground, W  
100-TON GRAV-FLOT MILL

**STREUBEL, G R**

Rt 1, Box 236, Oroville  
TOLERANCE PLACER, 22 mi N of  
Oroville, Butte Co, Au  
Under devel

**SUGAR LOAF MINE**

c/o C J Smith  
Rt 1, Box 22, Shingle  
SUGAR LOAF MINE, West Belt  
dist, Au, Ag

**SULPHUR MNG & SUPPLY CO**

191 East Glenns Blvd, Glendale  
MINE, Inyo Co, S

**SUMMIT HILL MINE**

Greenwood  
Owners: Boone & Turner  
MINE, Au, Ag, Pb  
25-TON GRAV MILL  
Under devel

**SUN VALLEY TUNGSTEN CO**

11370 Pendleton St, Sun Valley  
CUSTOM MILL, Los Angeles Co, W

**SUNSET CHROME MINE**

Forest Hill  
Opr: C L Matthews  
MINE, Placer Co, Cr

**SUNSET MINING CO**

230 S "E" St, Lakeview, Oregon  
YELLOW JACKET LODGE, High  
Grade dist, Modoc Co, Au, Ag

**SUNSET TUNGSTEN MINES**

Bishop  
W

**SUNSHINE GOLD MNG CO**

Box 353, Redding  
Pres: E C Brain  
Sec-Treas: W D McDuffie  
SUNSHINE MINE, 9 mi NW of  
Redding, underground, Au, Ag, idle,  
100-TON FLOT MILL

**SUNSHINE PARTNERS**

c/o Andrew Madglin, La Porte  
PIONEER PROJECT (WILDROSE),  
Piker Flat dist, placer, Au, Ag

**SUPER MOLD CORP OF CALIF**

420 No Sacramento St, Lodi 2  
VICTORY-PATSY GROUP, placer,  
Au, Ag  
NEW DEAL-BRONX-SUNSHINE  
GROUP LODGE, Randsburg dist  
STOCKTON #1-J LODGE, Randsburg  
dist, W

**SURCEASE MINING CO**

214 30th St, Sacramento  
Pres: J Hoefling  
VP: A M Hoefling  
Sec: J B Gee  
Mine Mgr: K Malone  
Asst Mine Mgr: D A Moyer  
ATOLIA MINES, Box 27, Red  
Mountain, 3 mi SE of Randsburg,  
underground, surface & placer, W  
Mine Supt: P B Hoefling  
GRAV MILL  
Supt: R C Lipold

**SUTHERLAND, L**

43 - 29th St, San Francisco  
STARBOUR PLACER, Salmon Riv  
dist, Au, Ag

**SWEENEY TUNGSTEN CO**

Box 185, Indio  
PINTO BASIN LODGE, Chuckawalla  
dist, Au, Ag, W

**SWEETSER, N W**

Box 45, Rosamond  
GOLDEN QUEEN MINE, Mojave  
dist, Au, Ag, Cu

**SYLVANIA TUNGSTEN MINE**

Lancaster  
W

**TAYLOR, MERLYN**

Box 202, Mariposa  
T A WOOD PROP, Madera Co,  
placer, Au

**TEDCO MINING CO**

Platina  
SUNSHINE, BLUE SKY, SEAGRAVES  
MINES, Tehena Co, Cr

**TEEKAY MINES, INC**

Box 245, Tracy  
Pres: S H Knapp  
Sec & Gen Mgr:  
VP & Gen Mgr: A V Taylor, Jr  
Bus Mgr: J A Briggs  
LADD MINE, Tracy, surface &  
underground, MnO<sub>2</sub>  
Prod: 80 tons  
GRAV-MAG MILL  
Supt: Jess Wilson  
Chem: H R Kaiser

**TENER, M M**

Lake Hughes  
DARK HORSE LODGE, Coso dist,  
Au, Ag  
Assessment work only

**THACKER, CHARLES W**

Strawberry Valley  
SCALES PLACER, Pike dist, Au

**THOMAIN, C F**

Sawyers Bar  
CROWN PLACER, Siskiyou Co, Au

**THOMAS, WALTER**

Box 100, Big Pine  
TIP TOP MINE, Inyo Co, W

**THOMPSON, W E**

Iowa Hill  
TWENTYONE MINE, placer, Au

**THOMPSON, W J**

1091 W Hays St, Banning  
HILL THOMPSON MINE,  
Riverside Co, W

**THUNDER MOUNTAIN**

MNG CO  
Box 116, Cartago  
TIN TYPE GROUP, Inyo Co, Sn  
Exploration only

**THURMAN & WRIGHT**

DREDGE  
625 Market St, Rm 205,  
San Francisco 5  
STATHAM, McLAIN, CLARK &  
LEININGER, SKILLEN &  
MCENESPY PROPERTIES,  
Butte Cr dist, Au, Ag

**TIGHTNER MINES CO**

Rm 305, 58 Sutter St, San Francisco  
Pres: Robert E McCulloch  
VP: Edwin L Oliver  
Sec: Carlo S Morbio  
Treas: W T Jenkins  
RED STAR GROUP, 1/2 mi N of  
Alleghany, underground, Au, Ag

**Under devel**

Mine Supt: Charles J Ayres  
GRAV MILL  
(Leased to Yellow Jacket Consol  
Gold Mines, Ltd)

**TIRADO, JOE**

San Benito  
TIRADO MINE, San Benito Co, Hg

**TOTLAND BROS**

Box 341, Leevining  
Gen Mgr: G H Totland  
BARBARA & BIG NUGGETT MINES,  
12 mi NE of Leevining, Au, Ag, Pb

**TOTLAND, GEORGE &**

PAUL SCANAVINO  
Box 341, Leevining  
Gen Mgr: George Totland  
GOLD STAR MINE, Leevining, 8 mi  
W of Conway Summit, underground,  
under devel  
GOLDEN FROG MINE, 8 mi W of  
Conway Summit, undergd, under devel

**TREBOR CORP**

410 22nd St, Merced  
STAR EXCELSIOR LODGE,  
Copperopolis dist  
Idle

**TROSTER, A F**

Box 83, Trona  
CORONA GROUP, So Park dist,  
lode, Au  
Idle

**TRUSSELL, ULRIC L**

Crescent Mills  
PREMIUM LODGE, Crescent Mills  
dist, Au, Ag

**TULARE CO TUNGSTEN MINES**

Box 361, Lindsay  
BIG JIM MINE, W

**TULE MINING CO**

Camp Nelson  
MINE, Tulare Co, W

**TUNGSTAR-HANGING**

VALLEY MNG CO  
Rm 705, 6253 Hollywood  
Bldg, Hollywood 28  
Ch of Bd: Gayle Green  
Pres: G F Temple  
VP: Gen Ralph Cousins  
Sec: C A Greene  
Treas: R E Ahlport  
Gen Mgr: Ira Thomason  
TUNGSTAR-HANGING VALLEY &  
BLACK ROCK MINES, Box 505,  
Bishop, 22 mi W of Bishop,  
underground, W  
GRAV-FLOT MILL, Pine Creek  
Prod: 75 tons

**TUNGSTEN KING MINES**

1941 Cedarlodge,  
MINES, Los Angeles

**TUNGSTONE MINES**

Box 567, Bishop  
Pres: W A Trout  
VP & Gen Mgr: C A Rasmussen  
Sec-Treas: Clyde Triplett  
Gen Supt: Ivar Heifer  
MINE & MILL, Posey, W  
150-TON GRAV CONCENTRATOR

**TUOLUMNE-TUNGSTEN CO**

Box 697, Sonora  
W

**TURTLE MOUNTAIN**

MNG CO  
c/o R G Van Horn, Partner  
P O Box 547, Earp  
VIRGINIA MAY, HORN GROUP LODGE,  
Turtle Mountain dist, Cu, Au, Ag

**TURNER, JOHN**

Moccasin Rt, Chinese Camp  
LUCKY #1 & 2 MINES, Tuolumne Co,  
placer, Au

**TWINING LABORATORIES**

2527 Fresno St, Fresno  
Owner: Fred Twining  
FLOT, MAGNETIC SEPARATION,  
prod-scale assaying  
Met: Vernon Young

**TYSON MINING CO**

Box 19, Smith River  
TYSON MINE, Del Norte Co, Cr

**UBEHEBE LEAD MINES, INC**

356 So Spring St, Los Angeles 13  
Pres: Grant Snyder  
VP: E S Alexander  
Sec: Allen Rankin  
Gen Supt: Louis Hinds  
UBEHEBE MINE, Death Valley,  
50 mi NE of Keeler, underground,  
Pb, Ag, Au  
Under devel

**UNDERSTOCK, E**

Box 50, Magalia  
WYOMING MINE, Butte Co, Au, Ag,  
Idle

**UNION MINING CO**

c/o Robert C Bach  
831 W Main St, Barstow  
WATERLOO (ZENADA) MINE,  
Calico dist, Ag, Au

**UNITED STATES BORAX CO**

510 W 6th St, Los Angeles 14  
BORAX MINE, Shoshone

**UNITED STATES GYPSUM CO**

300 W Adams St, Chicago 10, Ill  
OPEN PIT MINE, Madison, Wis  
Mgr: M C Grisham  
OPEN PIT MINE, Plaster City, Fresno  
(See Colo, Mont, Nev, Tex, Utah, Wyo,  
Lake Superior, Central & East)

**U S LIME PRODUCTS CORP**

1840 E 25th St, Los Angeles 25  
Pres: W O Anderson  
VP: Kennedy Ellsworth  
Sec-Treas: E B Long  
Cons Engr: S L Ayers  
SONORA PLANT, Sonora, open pit &  
shaft, limestone, dolomite  
Gen Mgr: W A Stinson  
Foreman: Stanley Wynne

**U S TUNGSTEN CORP**

Independence  
W

**U S VANADIUM CO**

A DIV OF UNION CARBIDE &  
CARBON CORP  
Bishop  
Gen Mgr: A P Cortelyou  
Gen Supt: H L McKinley  
Purch Agt: C A Smith  
PINE CREEK MINE, 27 mi NW of  
Bishop, underground, WO<sub>3</sub>, MnO<sub>2</sub>  
Prod: 800 tons  
Mine Supt: T W Holmes  
Mine Engr: J F Emerson  
1,000-TON FLOT MILL  
Mill Supt: L E Sausa  
(See Colo, East)

**USHER, J W**

Sawyers Bar  
SECURITY MINE, Siskiyou Co,  
underground, Au

**VALTON MNG & EXPLORE CO**

1109 Security Bldg, Long Beach 2  
Gen Mgr: E P Dorr  
SIDEWINDER MINE, NE of  
Victorville

**VAN GIESEN, ED**

Box 884, Auburn  
GOLDSBERRY MINE, Placer Co,  
underground, Au

**VAN HORN, G R**

Box 547, Earp  
ETHEL LEONA LODGE,  
Monumental dist, Cu, Au, Ag

**VICTORVILLE LIME ROCK**

CO  
Box 548, Victorville  
Limestone

**VICTORY MINERALS, INC**

Victorville  
Pres: G R Seals  
VP: Thomas Knight  
Sec-Treas: Wm Johnston  
Engr: Douglas Christensen  
BLUE NUGGET MINE, 22 mi N of  
Victorville, underground, Cu  
GREY EAGLE GROUP, Pb, Ag,  
limestone

**VIZCAINA & NICHOLS**

Big Pine  
HOPE & BLACK CANYON MINES,  
Inyo Co, Ag, Cu, Pb

**VOGES, L A**

Box 5, Hornbrook  
PROVIDENCE MINE, Siskiyou Co,  
underground, Au

**VOLO MINING CO**

464 Main St, Placerville  
Pres: F V Phillips  
SHAW & CLAYTON MINES,  
El Dorado Co, Au, Ag

**W M C MINING CO**

c/o Laurence J Mader  
P O Box 350, Grass Valley  
SUNSET LODGE, Grass Valley,  
Nevada City dist, Au, Ag

**WAGER, C E**

c/o Nimshew Stage, Chico  
KELLY HILL PLACER, Butte  
Creek, Au, Ag

**WALSH MINING CO**  
3935 N. Main St., Bakersfield  
Pres: Walter F. Buass  
Geol: C. V. Shuette  
CUDDEBACK MINE, near Keene,  
underground, Hg

**WALKER MINING CO**  
Box 127, Taylorville  
Pres: Ray B. Wiser  
VP & Gen Mgr: Alden H. Hughes  
Sec: Edson Abel  
OLD LUCKY S MINE, 17 mi NE  
of Taylorville, undergrd, Au, Cu, Ag  
Under devel

**WALKERS, J. R.**  
Box 37, Hornbrook  
LITTLE EVA PLACER, Cottonwood  
dist, Ag, Au

**WALMER, CARL**  
Forest Hill  
MOHAWK PLACER, Michigan Bluff  
dist, Ag, Au

**WALTERS, GEORGE**  
Downsville  
YORK MINE, Downsville dist

**WARNKEN, LOUIS JR**  
Box 37, Lone Pine  
DURHAM, ST CHARLES, FERNANDO  
& ALAMEDA GROUP, Inyo Co, W

**WARNER, C. D. & SON, LTD**  
1027 Yosemite Blvd, Modesto  
GRAVEL PIT & PLACER, Waterford  
dist, Au

**WATERMAN, J. L.**  
Rt 2, Box 2024, Elk Grove  
MOKELEUNE GRAVEL PIT,  
San Joaquin Co, placer, Au

**WATTS, ALVIN J.**  
Lowa Hill  
STRAWBERRY MINE, Placer Co, Au

**WATTS, JOHN L ESTATE**  
1019 Knoll Dr, Monterey Park  
BLACK MOUNTAIN MINE, San  
Bernardino Co, W

**WAUGHTEL, ROY V**  
Box 411, Yermo  
ALVORD & LITTLE MIKE MINES,  
San Bernardino Co, undergrd, Au, Ag

**WAYNER, WALTER E**  
Gen Del, Nevada City  
Gen Mgr: Charles M. Bryan  
CASCIA RANCH PLACER, Grass Valley  
Maintenance work only

**WAYNER, MRS WILLIAM E**  
323 S. Church St, Grass Valley  
GOLD STAR PLACER, Yuba dist, Au, Ag

**WAYNE, WILLIAM S**  
Box 2, Fawnskin  
GLACIER MINE, San Bernardino Co, Au

**WEAVER, A. C.**  
Sonora  
TIP TOP MINE, Tuolumne Co, Au

**WEAVER, GEORGE**  
Forbestown  
ALICE CADDY PLACER, Yuba Co, Au

**WEAVER, RUTH**  
Jamestown  
WEAVER RANCH PLACER,  
Mother Lode dist, Au

**WEBB, DAVID L.**  
O'Brien, Oregon  
WEBB MINE, Del Norte Co, Hg

**WEBB, TED**  
O'Brien, Oregon  
DIPPER MINE, Del Norte Co, Cr

**WEGMAN, MARGARET**  
P O Box 195, Randeburg  
WEGMAN GROUP LODE, Mojave  
dist, Kern Co, Ag, Au, Pb

**WELDON, HENRY**  
Weldon  
WHITNEY MINE, Kern Co,  
underground, Au, Ag

**WEST AMERICAN TUNGSTEN  
CO**  
Oviatt Bldg, Los Angeles  
PLACER WASHING PLANT, Atolia,  
W, Au  
Prod: 30 yds  
COLE & SWIFT PLACERS,  
Randeburg, W

**WEST COAST CHROME  
PRODUCERS**  
Box 324, Coalinga  
JAMES-THICKSTUN MINE,  
Fresno Co, Cr

**WESTERN ANTIMONY, INC**  
519 California St, San Francisco  
Pres: Wm C. Crittendon

**WESTERN BARIUM CORP**  
Russ Bldg, San Francisco  
MINE, Mariposa Co, barite

**WESTERN COPPER CO**  
Box 178, Taylorville  
Gen Mgr: R. P. Wilson  
IRON DYKE, BERDSLEY MINES,  
Au, Ag, Cu  
Prod: 100 tons

**WESTERN GOLD, INC**  
942 Russ Bldg, San Francisco 4  
Pres: W. H. Taylor  
Gen Mgr: T. H. Taylor  
RELIEF HILL MINE, Nevada Co,  
hydraulic, Au  
Idle

**WESTERN REFRACTORIES  
CO**  
Box 169, Lone  
Clay

**WESTERN SIERRA SCHEELITE**  
Box 1472, Fresno  
WESTERN SIERRA MINE, W

**WESTERN TALC CO**  
1901 E. Slauson Ave, Los Angeles  
Pres & Gen Mgr: F. H. Savell  
Sec-Treas: J. V. Elwood  
WESTERN TALC MINE, 9 mi SE  
of Tecopa, underground, talc

**WHISKEY HILL MINE**  
Schilling  
MINE, Shasta Co, underground, Au

**WHITE & RAY**  
Box 54, Orleans  
PEARCE MINE, Humboldt Co,  
placer  
Idle

**WHITE, WALTER**  
Box 1174, Auburn  
GLENN PLACER, Placer Co, Au

**WIECE, FRANK & WESLYN**  
Darwin  
SILVER SPOON MINE, Inyo Co,  
Ag, Pb, Zn

**WILLIAMS BROS**  
Rt 1, Box 1061-E, Modesto  
MINE, Mariposa Co, undergrd, Au  
Idle

**WILLIAMS, FRED**  
Rt 1, Box 591-C, Fresno  
WISHON & WATSON CLAIMS,  
Friant dist, Au  
Idle

**WILLOW VALLEY MINES,  
INC**  
461 Market St, San Francisco  
Pres: George Pettegrew  
Mgr: J. M. Hoff  
WILLOW VALLEY GROUP LODE,  
Grass Valley, Nevada City dist,  
Au, Ag

**WILSON, FRED D**  
Happy Camp  
PROTECTION PLACER,  
Siskiyou Co, Au

**WILSON, W. E.**  
Box 327, Foresthill  
PARAGON MINE, Placer Co, Au, Ag

**WIND WHEEL MINE**  
Box 151, Columbia  
Owner: R. O. Greeves  
MINE, underground, Au, Ag, under  
devel  
GRAV MILL

**WINSHIP, K. D. ESTATE**  
c/o T. T. Taylor, 350 Post St,  
San Francisco 8  
UNION FLAT PLACER, East  
Belt dist  
Idle

**WINTER, WILLIAM & SON**  
429 San Anselmo  
RAINBOW MINE, Siskiyou Co

**WISDOM, J. S.**  
14631 Sherman Way, Van Nuys  
BUSTER GROUP LODE, White  
Mountain dist, Ag, Pb, Zn

**WOLDEN, ESTEN**  
Box 1103, Nevada City  
HARDWORK PLACER, Sierra Co, Au

**WOLFE, W. C.**  
Rt 1, Box 1710, Colfax  
OAK HILL PLACER, Yuba dist

**WOODRUFF, WILLIAM W.**  
Rt 2, Box 95-A, Perris  
CENTENNIAL MINE, Riverside Co,  
underground, Au, Ag, idle  
WASHINGTON LODE, Pinacate  
(Perris) dist, Au, Ag

**WRIGHT, J. F.**  
Box 424, China Lake NOTS,  
China Lake  
BLUE ROCK MINE, 20 mi W of  
China Lake, underground, scheelite,  
under devel  
GRAY HILL CLAIM, 20 mi W of  
China Lake, underground, scheelite,  
under devel

**WYLIE, A. K.**  
Alturas  
LOST CABIN LODE, Winters dist,  
Au, Ag

**WYLIE, MR & MRS V. L.**  
Georgetown  
GOLD COIN MINE, El Dorado Co,  
underground, Au

**YANEY MINE**  
c/o Chas Scharff, Bishop  
MINE, Inyo Co, W

**ZINDELL, WALTER H.**  
Box 71, Essex  
HOWE MINE, San Bernardino Co, W

**YEAROUT, D. J.**  
Box 465, Avenal  
HEISKELL PROPERTY, Fresno  
Riv (Dennis) dist, placer, Au, Ag

**YELLOW JACKET CONS  
GOLD MINES**  
120 Chester Ave, Bakersfield  
Pres: Clifford Dickhut  
Sec: James Ebert  
YELLOW JACKET GROUP,  
OSCEOLO GROUP, TIGHTNER MINE &  
TENNESSEE GRAVEL MINES, Alleghany, Au, Ag  
Under devel  
Supt: C. J. Ayres

**YOLO DEVELOPMENT CO**  
1900 V St, Sacramento  
Pres: E. G. Bickell  
BLUE POINT MINE, Smartville,  
surface, placer, Au  
Under devel

**YOUNG, CHARLES B.**  
Siad Valley  
ANITA PLACER, Klamath Riv  
dist, Au, Ag

**YOUNG & RUNKLE**  
3438 1st Ave, Sacramento  
MARGARET D PLACER, West  
Belt (Latrobe) dist, Au, Ag

**YUBA CONS GOLD FIELDS**  
351 California St, San Francisco  
Pres: S. M. Bolster  
VP & Gen Mgr: F. C. Van Deinsse  
Sec-Treas: O. W. Smith  
Geol: Leslie Gassaway  
PLACER MINES, 10 mi NE of  
Marysville, 6 dredges on Yuba Riv,  
1 dredge on Feather Riv, Au  
Res Supt: Cecil Brophy  
Gen Field Mgr: C. V. Deaver

**YUKOHL TUNGSTEN MNG CO**  
Box 39, Dunlap  
Pres & Gen Mgr: R. W. Burge  
TRAWEEK MINE, W  
Mgr: S. H. Strickland  
35-TON MILL  
Idle

**ZAGAR, A. J.**  
Box 112, El Dorado  
DAISY MAY LODE, Mother Lode  
dist, Au, Ag

## ADDENDA

**BALLANCE, JOHN W.**  
Nipton  
BLUE BUZZARD MINE, Clark Mt  
dist, Ag, Cu, Pb

**BARIUM PROD. LTD**  
SAVERPOOL MINE, Plumas Co,  
barite  
ALMANOR MINE, Greenville, barite  
Mgr: J. B. Perry  
Supt: H. J. Tillia  
Engr: R. F. Love  
Mill Foreman: T. J. Cayot  
(See Barium Products, Nevada,  
Intermountain Chem, Wyo;  
Food Mach & Chem, East)

**GREAT LAKES CARBON  
CORP., DICALITE DIV**  
812 S. Flower St, Los Angeles 17,  
Calif  
VP & Gen Mgr: George Skakel, Jr  
Asst Gen Mgr: D. L. Marlett  
Oper Mgr: E. A. Harris  
Purch Agt: T. D. Moir  
PLANT #1, Welteria, surface,  
diatomaceous earth  
Supt: A. K. Muir  
PLANT #3, Lompoc, 10 mi from  
Lompoc, surface & quarrying,  
diatomaceous earth  
Supt: E. A. Ingram  
(See Colo. Nev. New Mex.  
Oregon & East)

## COLORADO

**ADOLPH POSTON MNG CO**  
Box 510, Canon City  
COTOPAXI MINE, Fremont Co,  
Zn, Pb, Cu, Ag

**AJAX BASE METALS, INC**  
8 Howard-Canfield Bldg,  
Santa Barbara, Calif  
Pres: L. E. Dresback  
Gen Mgr & Engr: Glenville Collins  
Sec: Don Dalzell  
MORO AJAX & EMPIRE GROUPS,  
Lake City, 10 mi W of Lake City  
underground, Pb, Zn

**AJAX MINING & OIL CO**  
Box 1075, Grand Junction  
Pres & Gen Mgr: C. A. Dye  
VP: J. W. Lewis  
Sec-Treas: E. K. Stephen  
AJAX & LUCKY DAY CAVE MINES,  
6 mi SW of Gateway, underground, U, V  
Prod: 10 tons weekly  
Under devel

**ALEXANDER LEASE**  
Box 33, Ouray  
Opr: Earl A. Alexander  
LOST DAY-PATSY MINE, Ouray  
Co, Zn, Pb, Ag

**ALLIED CHEM & DYE CORP.,  
GEN CHEM DIV**  
Box 228, Boulder  
Mgr, Mng Oper: Robert H. Dickson  
Asst Mgr, Mng Oper: Wilbert J.  
Treppe  
Metal: George H. Musson  
JAMESTOWN MINES, 20 mi from  
Boulder, underground, CaF<sub>2</sub>  
under devel  
Prod: 100 tons  
Supt: A. W. McGowan  
Mine Foreman: William Popst  
100-TON MILL  
Mill Foreman: H. T. Henshaw  
(See New Mex, Central, South & East)

**ALMA SYNDICATE**  
Fairplay  
MINERAL PARK CLAIMS,  
Park Co  
Opr: George Spencer

**AMERICAN SMELTING &  
REFINING CO**  
607 First Nat'l Bank Bldg,  
Denver 2  
Mgr: J. Paul Harrison  
ARKANSAS VALLEY PLANT,  
Box 973, Leadville, Pb  
Supt: T. P. Fahey  
Asst Supt: K. D. Loughridge  
Metallurgists: M. D. Rood, L. C.  
Travis, R. Enoch, P. A. De Santis,  
& A. G. Lane  
Master Mech: John Clark  
Chief Clerk: Edward J. Kelly  
Safety Engr: Frank Stevens  
Plant Engr: R. L. Armbruster  
Ch Assayer: R. J. Elliott  
Ch Chem: Max Kasten  
GLOBE PLANT, Denver, Cd  
Supt: W. L. Miles, Jr  
Asst Supt: Max Coats  
Metal: C. F. Baker, Jr  
Ch Chem: Earl L. Rau  
Safety Insp: J. J. Ryan  
LEADVILLE MNG DEPT  
Mine Supt: J. C. Mitchell  
Res Geol: G. L. Fairchild  
Asst Mine Supt: R. S. Burton  
Mine Engr: Howard Bloomfield  
Mine Foreman: Andy O'Korn  
Mine Elec: Jack Kendrick  
IBEX-SUNDAY, ECLIPSE-IRENE,  
FRYER HILL & ROBERT EMMETT  
OPNS, Zn, Pb, Au, Ag  
(See Ariz, Calif, Ida, Mont, New Mex,  
Tex, Utah, Wash, Central & East)



**ANACONDA LEAD & SILVER CO**  
1717 E Colfax Ave., Denver  
Ch. of Bd.: Gen Lloyd D Ross  
Pres: Ralph G Orton  
Exec VP: Howard P Waite  
EL PASO MINE, Cripple Cr., Au

**BACHELOR CORP**  
Box 40, Placerville  
Pres: Robert L Ludwig  
VP: John Bertorello  
Sec: H E Popham  
BLAINE & LITTLE JOHNNY MINES,  
23 mi N of Placerville, underground,  
U. Th, rare earths, under devel  
Mine Supt: R Riddle  
40-TON FLOT MILL, chem ext  
Mill Supt: Roy Roatcap

**BARD CREEK MINE**  
Empire  
Owner: A F Mayham  
Lessee: Clifford Whitworth  
MINE, near Empire, Au, Ag, Pb, Zn  
Under devel

**BARLOW & BEARD**  
Dove Creek  
RADIUM "B" MINE, San Miguel  
Co, U

**BARNES MINING CO**  
Box 161, Silverton  
Pres & Gen Mgr: R C Barnes  
VALLEY FORGE GROUP, 2 mi  
NE of Silverton, underground,  
Au, Ag, Cu, Pb, Zn  
Prod: 20 tons  
Idle

**BELISLE & REED**  
Ophir  
NEW DOMINION MINE, San Miguel  
Co

**BERYLLIUM MNG CO, INC**  
320 2nd Ave., Seattle 4, Wash  
Pres: J R Weninger  
VP: A L Schuler  
Gen Mgr: C A Weninger  
OHIO CITY MINE, 22 mi from  
Gunnison, Box 276, Gunnison,  
surface, beryl, mica, feldspar,  
tantalite, columbite  
Foreman: Roscoe Riddle

**BETTY JANE MNG CO**  
Monteruma  
Mgr: F S Chilson  
Owner: J A Alley  
WAUNETA MINE, Summit Co  
Idle

**BIG FOUR MNG CO**  
Kremmling  
Owner: Frances McDaniel  
MINING, Zn, Pb, Au, Ag  
Idle

**BONITA MNG & DEV CO**  
Box 186, Silverton  
Pres & Gen Mgr: H P Ehringer  
VP: F C Brightly  
LEAD CARBONATE MINE, 11 mi  
NE of Silverton, underground,  
Pb, Zn, Cu, Au, Ag  
50-TON FLOT MILL  
MINNEHAHA & PRIDE OF BONITA  
MINES, 11 mi N of Silverton,  
underground, Pb, Ag, Zn  
EMMA-OREGON-GALENA GROUP,  
San Juan Co, Zn, Pb, Ag, under devel

**B R C MINING CO**  
Idaho Springs  
Pres: W J Roberts  
ALLEN EMORY MINE, Monteruma,  
underground, Pb, Zn, Ag

**BUCKSKIN JOE MINES, LTD**  
Alma  
Gen Mgr: C W Jordan  
PHILLIPS MINE, Au, Ag, Cu, Pb, Zn, Fe  
Prod: 200 tons monthly  
Foreman: Joe Thibodeau

**CALLAHAN ZINC-LEAD CO**  
Sargents  
Supt: J E Dunn  
Asst Supt: R J Flynn  
Foreman: Ora Stalter  
Engr: Ralph Stitzer  
AKRON MINE, Pb, Zn  
75-TON FLOT MILL  
Idle  
(See Alaska, Nevada & East)

**CAMP BIRD LTD**  
Ouray  
MINE, Ouray, Au, Ag, Cu, Pb, Zn  
Mine Supt: Keith P Johnson  
(Leased to King Lease, Inc - see East)

**CANYON GOLD, INC**  
209 E Bennett Ave.,  
Cripple Creek  
Pres: Troy E Wade  
VP: William A Kyner  
Sec-Treas: Jesse Simmons

**RUBIE & GRACE GREENWOOD**  
MINE, 2 mi from Cripple Cr., Au  
Prod: 20 tons

**CENTRAL MNG & DEV CORP**  
Central City  
Pres: W C Schaus  
VP & Mgr: R M Schaus  
Purch Agt: J M Haney  
NATIONAL, MEEKER SUCCESS,  
IVANHOE & BARNES, STARK CO  
MINES, underground, Au, Ag, Cu,  
Pb, Zn  
Supt: Joe Thomas  
Foreman: Marvin Olson

**CHAMPION MINES CO**  
941 Monroe St., Denver 8  
Pres: Jesse Simmons  
Sec: J J Simmons  
MORNING STAR & LAST CHANCE  
MINES  
LEASES ON JERRY JOHNSON, WPH  
& FOREST QUEEN MINES, Cripple  
Creek, underground, Au

**CLIMAX MOLYBDENUM CO**  
Climax  
Gen Mgr: C J Abrams  
Res Mgr: F Coolbaugh  
Gen Supt: Robert Henderson  
Elec Engr: A L Bement  
Geol: Fred Howell  
Safety Engr: Leo Glanville  
Purch Agt: S Swenson  
CLIMAX MINE, Climax, 100 mi W  
of Denver, underground &  
surface, MoS<sub>2</sub>, WO<sub>3</sub>, Sn  
Prod: 20,000 tons  
Mine Supt: John Petty  
Asst Mine Supt: E J Eisenach  
Mine Engr: M W Walker  
20,000-TON GRAV-FLOT MILL  
Mill Supt: Max Dessau  
Asst Mill Supt: Frank Windolph  
(See East)

**CLIMAX URANIUM CO**  
Grand Junction  
VP & Gen Mgr: Marvin L Kay  
Asst Gen Mgr: James Duggan  
Metal: Woodrow Knott  
Geol: Ken Huston  
Purch Agt: Ray Gough  
MINES in Colo, Utah & Ariz, 50-310  
mi S-W of Grand Junction, under-  
ground, U, V  
Mine Supt: J E Weston  
Asst Mine Supt: Anthony M Mastrovich  
Mine Engr: R S White  
MILL, Grand Junction  
Mill Supt: R C Toerper  
Asst Mill Supt: L G Peterson  
Assayer: Q S Kocher  
(See East)

**COBB & WELDON**  
401 Pine St., Boulder  
MINES, Boulder tungsten dist,  
surface, W  
Prod: 70 tons  
Mine Supt: Harrison S Cobb  
70-TON GRAV MILL, Lakewood  
near Nederland  
Mill Supt: A B Weldon

**COLORADO FUEL & IRON CORP**  
Continental Oil Bldg., Denver  
Pres: A F Franz  
VP: Chg Opr: J J Martin  
Sec: D C McGrew  
Purch Agt: L C Rose  
MINING DEPT, Box 316, Pueblo  
Gen Mgr, Mines: G H Rupp  
Geol: D A Carter  
MONARCH QUARRY, Garfield,  
surface, limestone  
Prod: 2,000 tons  
Mine Supt: J E Whitney  
CANON DOLOMITE QUARRY,  
Canon City, surface, dolomite  
Prod: 400 tons  
Mine Supt: E C Jagow  
(See Wyoming)

**COLORADO GOLD KING, INC**  
Box 186, Silverton  
GOLD KING & GOLDEN MONARCH  
MINES, undgd, Au, Ag, Cu, Pb, Zn  
Supt: L M Mertz  
Asst Supt: C W Fleming  
Engr: John Briggs  
Foreman: John Jenkins  
50-TON FLOT MILL  
Supt: Geo Voilleque  
Asst Supt: H P Ehringer III  
Idle

**COLUMBINE PLACER MINES, INC**  
Rm 308, 1030 15th St., Denver 2  
Pres: Samuel Johnson  
Sec: Dwight F Johnson  
RED BUCK MINE, 35 mi NE of  
Gunnison, undgd, Au, Ag, Cu  
Under devel

**CONS CARIBOU SILVER MINES**  
1408 Pearl St., Boulder  
Pres: D M Nelson  
VP: R J Reynolds, Jr  
Gen Mgr: Matthew Olesen  
MINE, 20 mi W of Boulder,  
underground, Ag, Pb, Au, U  
Supt: Ed Rice  
Engr: A Bird  
150-TON FLOT MILL  
Supt: Paul Robinson  
Assay: Edward Hill

**CORDILLERA CORP**  
Box 61, Fairplay  
VP Chg Opr: N H Dunn  
Owner: C J Merline  
LING GROUP MINES, Summit &  
Park counties  
Idle

**COSTELLO LEASE**  
Bonanza Rt., Villa Grove  
Opr: W J Costello  
RAWLEY MINE, Bonanza, 20 mi NW  
of Villa Grove, undgd, Pb, Ag, Cu, Zn  
Prod: 50 tons

**CRESSON CONS GOLD MNG & MLG CO**  
Box 127, Cripple Creek  
Pres: M E Shoup  
VP & Gen Mgr: Maw W Bowen  
Gen Supt: C H Carlton  
Mech Engr: Guy Rorabaugh  
Purch Agt: H L Stone  
CRESSON MINE, 5 mi SE of Cripple  
Creek, underground, Au, Ag  
Prod: 100 tons  
Mine Supt: A H Bebee, Jr  
Mine Engr: Ben Slothower

**CRESTED BUTTE MNG & MLG**  
Crested Butte  
VP & Gen Mgr: Mason J Rankin  
DAISY, CRESTED BUTTE, OH BE  
JOYFUL & LITTLE DAILY MINES,  
Gunnison Co

**CRIPPLE CREEK MNG & MLG CO**  
Box 247, Cripple Creek  
Gen Mgr: Richard B Walls  
GOLD KING MINE, 1 mi from  
Cripple Cr., underground, Au  
Under devel

**DANIEL, GEORGE S**  
625 F St., Salida  
STONEWALL MINE, Chafee Co  
Idle

**DAVENPORT, W L CO**  
Breckenridge  
WELLINGTON GROUP,  
MCKINLEY MINES, Au, Ag, Cu, Pb, Zn

**DEADWOOD LEASING CO**  
Cripple Creek  
FREE COINAGE MINE, Au

**DEFENDER MINING CO**  
Silvercliff  
Mgr: Ray O Pratt  
DEFENDER MINE, Custer Co, Pb, Ag

**DIAMOND MT MINES, INC**  
Idaho Springs  
Mgr: Wm Wright  
KITTY CLYDE MINE, Clear Cr Co

**DULANEY MINING CO**  
312 First Nat'l Bank Bldg.,  
Grand Junction  
Pres & Gen Mgr: R O Dulane  
VP & Asst Gen Mgr: C H Dulane  
VP: Harry B Friedman  
Sec: Thomas E Potts  
Gen Supt: Leroy Hemphill  
Geol: George Gilmore, Jr  
Purch Agt: Mrs Elvira Potts  
RADIUM #7 GROUP, 31 mi N of  
Dove Creek, underground, U, V  
Prod: 100 tons  
Mine Supt: Leroy Hemphill  
Mine Engr: George Gilmore, Jr

**E & H LEASING CO**  
Meeker  
BURRELL #1 & LAST DAY MINES,  
Montrose Co, U

**EAST, JIM & K J KING**  
Idaho Springs  
CRAZY GIRL MINE, Clear Creek  
Co, Au, Ag, Pb

**EAST RIDGE CO**  
Box 539, Ouray  
Gen Supt: A E Dirrim  
Geol: F H Frederick  
ANDRUS MINE, 14 mi NW of  
Silverton, undgd, Zn, Pb, Cu, Ag, Au  
(See California)

**EAST SLOPE MNG CO**  
Canon City  
BETTY MINE, Gen Mgr, Asst  
Park Co, Au, Ag, Pb, Zn  
PARK CO & BRIDGE MINE  
Idaho Springs, Clear Cr Co,  
Au, Ag, Cu, Pb, Zn

**EMPERIUS MING CO**  
Emperius Bldg., Leadville  
Pres: T B Powers  
Treas: H B Haydon  
Gen Mgr: E W Nelson  
COMMODORE, AMETHYST,  
EQUINOX, ROBINSON &  
HAPPY THOUGHT MINES, 11 mi  
N of Creede, Pb, Zn, Ag, Au, Cu  
Mine Supt: I D Crawford  
120-TON FLOT MILL, 1 mi S of  
Creede  
Mill Supt: W D Cahn  
Assayer: A M Wilson

**ERNEST, LLOYD & HAROLD**  
Dove Creek  
RADIUM #6 MINE, San Miguel Co, U

**EVANS BASIN MNG CO**  
Crested Butte  
Mgr: Joe Ruzman  
CHAUTAUQUA MINE, Gunnison Co

**FEDERAL MNG & MLG CO**  
Russell Gulch  
Pres & Gen Mgr: J N Thowen  
MINE, Gilpin Co, undgd, Au, Ag,  
Cu, Pb, U  
75-TON FLOT MILL  
Supt: Henry Rees  
Foreman: J T Powers, Jr  
Idle

**FORTUNE MINE**  
Leadville  
Lessee: J L Adams & G L  
Fairchild  
MINE, Lake Co, Pb, Zn, Au, Ag

**FOSTER, RALPH**  
1217 Colorado Ave., Grand Junction  
CALAMITY MINES, Calamity Area, U

**FOURSOME MINING CO**  
Silverton  
Gen Mgr: Wm Erickson  
COLUMBUS MINE, Au, Ag, Cu, Pb, Zn  
Idle

**FRONT RANGE MINES, INC**  
Burns Vault Bldg., Denver  
Pres: John Deerkson  
VP & Gen Mgr: George H Teal  
MATTIE MINE, Clear Cr Co, Pb, Ag  
MELVINA MINE, Boulder Co, Au  
STRONG & MARY CASH MINE  
Teller Co, Au  
KING SOLOMON GROUP, under devel  
CLEAR CREEK MILL, Dumont, Co  
Prod: 200 tons

**GALENA QUEEN LEASING CO**  
c/o Glenn Gardner, Silverton  
MINE, San Juan Co

**GARFIELD MINE**  
Box 209, Salida  
Gen Mgr: W E Burleson  
Contractor: Carl Mcullen  
GARFIELD MINE, 20 mi W of Salida  
underground, Pb, Au, Ag  
Idle

**GATEWAY MNG & DEVEL CO**  
875 Glenwood Ave., Grand Junction  
Pres & Gen Mgr: Edw Gilmore  
VP: R C Hartman  
Sec: John Thornton  
Treas: Herman Teteloff  
Engr: Jake Lewis  
CORVUSITE MINE, 11 mi W of  
Gateway, underground  
Prod: 10 tons

**GENERAL GOLD CORP**  
Twin Lakes  
Pres: W H Haines  
Gen Mgr: A E Hall  
Sec-Treas: O J Boucher  
MT ELBERT PLACERS, Leadville,  
Au, Ag, dragline dredge  
Supt: Robert Berke  
Idle

**GILES, LEROY & CO**  
Idaho Springs  
DIXIE MINE, Clear Creek Co

**GLOBE HILL MNG CO**  
335 Independence Bldg.,  
Colorado Springs  
Pres & Gen Mgr: A S Kesselman  
VP: Payson Gregory  
Sec-Treas: George F Gross  
PROPER & CHICAGO TUNNEL MINES  
1 mi E of Cripple Creek, undgd, Au  
Prod: 15 tons  
Mine Supt: Harry Allen

**GOLD MINES CONS, INC**

Georgetown  
Pres & Gen Mgr: K M Ohlander  
Treas: J R Davill  
Sec: R E Roub  
**DUNDERBERG-TERRIBLE MINE,**  
Silver Plume  
**AUE DANDY MINE,** Cripple Cr, Au

**GOLDEN CYCLE CORP**

Box 8, Laramie Bldg.  
Colorado Springs  
Pres: M E Shoup  
VP & Gen Mgr: Max Bowen  
Purch Agt: Howard Stone  
**AXAX MINE,** Cripple Creek, Au  
Supt: Charles Carlton  
Foreman: M H Grice  
**1000-TON FLOT-CYAN MILL**  
Supt: Howard Neil

**GRAMLICH MINERALS INC**

Paradox  
Pres & Gen Mgr: J W Gramlich, Sr  
VP & Supt: J W Gramlich, Jr  
Sec-Treas: P J Gramlich  
**LION-OR CLAIMS,** SW of Paradox, U, V  
Prod: 10 tons

**GREAT EASTERN MNG CO**

Silverton  
Pres: W L Chase  
Dir: Allen T Chase  
Ch of Bd: Art Kinkletter  
Purch Agt: Carl Leason  
**GREAT EASTERN BURNS GULCH,**  
**SIXON CITY, GREEN MT & PRIDE**  
**OF THE WEST MINES,** underground,  
Au, Ag, Cu, Pb, Zn  
(Leased to Flemming, Slade & Knolls)  
**100-TON FLOT MILL,** Howardsville

**GREAT LAKES CARBON CORP**

Rosita  
**ALEXITE MINE,** Rosita, surface,  
perlite  
**100-TON MILL,** Florence  
(See Colo, Calif, Nev, New Mex,  
Oregon & East)

**GREGORY & PACKARD PLACER**

Blackhawk  
Owner: L D Clark  
**MINE,** Gilpin Co, Au  
Idle

**GUM TREE MNG SYNDICATE**

Idaho Springs  
**MINE,** Clear Creek Co  
Idle

**HENNA MINES, INC**

Box 483, Boulder  
Pres: Leo Delorme  
Sec & Gen Mgr: W E Brewster  
**CASH, BELLEVUE, WHO DO &**  
**COLUMBUS MINES,** 10 mi NW of  
Boulder, underground, Au, Ag, Pb  
Idle

**HENNING, KETTLE & WALKER**

Weatcliffe  
**DEFENDER MINE,** undgrnd, Ag, Pb, Zn  
(Leased to Ed Stacy)

**HERRON BROS**

Box 545, Aspen  
Mgr: John L Herron  
**HENRY CLAY GROUP,** Aspen, Ag, Pb

**HETZER MINES, INC**

Boulder  
Pres: Elmer Hetzer  
**MINES,** Boulder Co, W, leased  
**HOOSIER MINE,** Prime & Johnson  
**PROSPECT TUNNEL,** Jones & Funk  
**SPENCER TUNNEL,** Ray & R Flarty  
**LAST CHANCE MINE,** Prime,  
Johnson & McKenzie  
HEINE LEASE, Hennings & Smith

**HIGHLAND MARY MINES,**

INC  
900 Land Bank Bldg.  
Kansas City, Mo  
Pres: A R Jones  
Sec-Treas: C W Trapp  
Mgr: F A Brinker  
Gen Supt: R M Andreaatta  
**MINE** 9 mi E of Silverton, Pb, Ag,  
Au, Cu  
Mine Foreman: Wm Loftus  
Idle

**HOLDEMAN, E T**

Uravan  
**MILL #1, R A & RAMBLER**  
**MINES, CLUB GROUP,** 2 mi S  
of Uravan, underground, idle  
**LONG PARK #5 & #12 MINES,**  
13 mi SE of Uravan, undgd, U, V  
Under devel  
Mng Foreman: Lee Southard

**IDA BELLE MINE**

Breckenridge  
Sub-lessee: Wm K Kirschmer

**IDARADO MINING CO**

Box D, Ouray  
Pres: Oscar H Johnson  
Gen Mgr: John S Wise  
**MINES,** 12 mi SW of Ouray on  
Red Mountain, undgd, Cu, Pb, Zn  
Prod: 750 tons  
Mine Foreman: R H Leber  
Mine Engr: C C Chamberlain  
**800-TON FLOT MILL**  
Mill Supt: R W Unger  
**UTE & ULAY MINES,** Lake City,  
Pb, Zn, under devel  
(See Newmont Mng Corp, East)

**INTERNL MIN & CHEM CORP**

**MINE & 800-TON FLOT MILL,**  
Parkdale  
**PLANTS,** Denver & Pueblo  
**MINES,** Gunnison, Teller,  
Saguache & Douglas Counties  
(See Ariz, Calif, Mont, New Mex,  
So Dak, Wyo, Central, South & East)

**IVANHOE TRUST**

Kokomo  
Mgr: D E Litz  
Sec: O M Campbell  
Gen Supt: L Deay-Reusch  
**QUEEN OF THE WEST MINE,**  
Kokomo, underground, Ag, Au, Pb, Zn  
**100-TON GRAY-FLOT MILL**

**ISABELLA MINES, INC**

Colorado Springs  
Pres: Wm A Kyner  
VP: Franklin Ferguson  
Sec-Treas & Gen Mgr: J H Keener  
**ISABELLA MINE,** Cripple Creek  
Idle

**JACK PINE MINING CO**

c/o D V Watrous, Denver  
Opr: D C Mitchell, Idaho Springs  
**MINE,** Clear Creek Co  
Idle

**JACKPOT LODES #1-2-3**

Ouray  
Owner & Opr: F O Richardson  
**MINES,** Au, Ag, Cu, Pb, Zn  
Idle

**JEFFREY & ULIBARRI**

Montezuma  
**QUAIL, WATERLOO, NEW YORK &**  
**SILVER KING MINES,** Summit Co

**JESSIE MINE**

Summit Co, Breckenridge dist  
Opr: S P True

**JOE DANDY MINING CO**

334 Independence Bldg, Colo Sprgs  
Pres: Hildreth Frost  
VP: Vernon Mitchell  
Gen Mgr & Treas: A S Konseiman  
Sec: C E Yoes  
Supt: Harry Allen  
**JOE DANDY, C O D, COMMON-**  
**WEALTH, HILLSIDE, CLIMAX,**  
**VICTORY & SEATTLE MINES,**  
3-5 mi E of Cripple Cr, undgd,  
surface, Au

**JONES LEAD & ZINC MINES**

Box 592, Leadville  
Owner: Robert L Jones  
**GARIBOLDI MINE,** 2 mi E of  
Leadville, underground, Pb, Zn, Au, Ag  
Prod: 800 tons  
**SUMMITVILLE MINES,** 45 mi W of  
Monte Vista, undgd & surface, Cu, Au  
under devel

**JOSIE K FOLSOM MNG &**

**MLG CO**  
4280A Holly Ave, St Louis 15, Mo  
Pres: Dr C R Curran  
Gen Mgr: Fred W Kublin  
Dir: Paul Becker  
Dir: Oscar F Huegel  
**JOSIE K FOLSOM MINE,**  
Saguache Co, P O Address, Del Norte,  
Au, Ag  
Assay: George G Hayes, Denver  
Under devel

**KANARADO MNG & DEVEL CO**

Box 27, Ohio  
Pres: Charles Vashus  
VP: B V Warren  
**CARTER MINE,** Gunnison Co, Au, Ag  
**FLOT-AMAL MILL**

**KENNEBEC MINING CO**

Canon City  
Lessee: M J Krolnicki  
Gen Mgr: A E Moynahan  
Supt: R L Robeson  
**ORPHAN BOY MINE,** Park Co  
Idle

**KING LEASE, INC**

Ouray  
Pres: Joseph King  
Exec VP & Gen Mgr: H S Worchester

**See: Franklin A Bell**

Treas: Kenneth Moore  
Asst Sec: James K Groves  
Purch Agt: J E Danielson  
**CAMP BIRD MINE,** 6 mi SW of  
Ouray, underground, Pb, Zn, Cu, Ag, Au  
Supt: L D Barry  
Asst Supt: F A Bell  
Foreman: F M McConochie  
Engr: T H Hedlund  
**CAMP BIRD MILL,** flot  
Prod: 120-240 tons  
Supt: Gus Cossairt  
Maintenance work only  
(Leased from Camp Bird, Ltd)

**KINGS TURQUOISE CO**

Manassa  
Pres: Charles G King  
Mgr & Mine Foreman: Horace E King  
**TURQUOISE MINE,** Manassa

**KNICKERBOCKER MINING CO**

Rico  
Gen Mgr: K L Erickson  
Asst Gen Mgr: N J Knickerbocker  
Gen Supt: Edward C Baer  
**UNION CARBONATE MINE,** 3 mi E of  
Rico, underground, Zn, Pb, Ag  
Idle

**KRONSBELN, ROBERT F**

Norwood  
**MINE** in San Miguel Co, U

**LAKE MINING CO**

Idaho Springs  
**LAKE MINE,** Clear Creek Co, Au, Ag, Pb

**LAMBERTSON, JOHN**

Gunnison  
Co-owner & Mine Engr: Karl  
Lambertson  
**STAR MINE GROUP,** 55 mi N of  
Gunnison, underground, Pb, Ag  
Prod: 300 tons per year  
**DOCTOR MINE,** 27 mi N of Gunnison,  
underground, Zn, idle

**LEADVILLE LEAD CORP**

Fairplay  
Treas: Tom E McKay  
Sec: Clio L Kem  
**LAST CHANCE MINE,** Park Co  
Under devel

**LECLAIR CONS MNG CO**

Box 127, Cripple Creek  
Gen Mgr: Max W Bowen  
**MINE,** Cripple Creek, Au

**LITTLE ALICE LEASE**

Leadville  
**LITTLE ALICE MINE,** Lake Co  
(Leased to Murray Bros)

**LOMBARD MINES, INC**

Idaho Springs  
Pres & Gen Mgr: Oscar L Stutenroth  
VP: M A Isern  
**LOMBARD MINE,** 11 mi NW of Idaho  
Springs, Au, Pb, Ag, Cu, Zn,  
100-TON FLOT MILL  
Idle

**LONDON EXT MNG CO**

704 U S Nat'l Bank Bldg, Denver 2  
Pres: F C Bishop  
Gen Mgr: H C Bishop  
(See Nevada)

**LU EV MINING CO**

Idaho Springs  
Partners: J G McGrath, Joe Thomas  
**HOPE, POWERS & IROQUOIS MINES,**  
Gilpin Co, Au, Ag, Cu  
**FLOT MILL**  
Idle

**LUPTON MINING CO, INC**

Box 498, Georgetown  
Pres & Gen Mgr: Ellis P Lupton  
VP & Asst Gen Mgr: J C Lupton  
Sec & Purch Agt: W E Vernon  
Metall: Axel Johnson  
**GUZZLY GULCH GROUP,** 2 mi S of  
Bakerville, undgd, Pb, Zn, Au, Ag, Cu  
Prod: 60 tons  
Mine Supt: Karl Eisner  
Asst Mine Supt: Eli Zegar  
Mine Foreman: T P Davis  
Mine Engr: C P Swerdfeger  
**75-TON FLOT MILL,** Georgetown  
Mill Supt: Charles A Quinn  
Mill Foreman: Harold W Haskins

**M & S INC**

Salida  
Pres: J W Magnuson  
Gen Mgr: R H Magnuson  
**SPIKEBUCK MINE & SNOWDRIFT MINE,**  
surface, feldspar

**MARIPOSA MNG CO**

Box 1720, Telluride  
Pres: Thomas Katnig  
Gen Mgr: George T McCall  
**BUTTERFLY MINE,** Ophir, 1 mi  
S of Ophir Loop, undgd, Pb, Au, Cu, Zn

**Prod: 12 tons**

Mine Foreman: L Beardslee

Under devel

**MARKLEY MNG & EXPLOR CO**

Cripple Creek  
Mgr: Lee Brown  
**TENDERFOOT PROPERTY,** Au

**MARY MURPHY GOLD MNG CO**

Box 209, Salida  
Gen Mgr: W E Burleson  
**MINE,** 4 mi SW of St Elmo, undgrnd  
Foreman: Henry Carey  
Idle

**MAY DAY MINING CO**

Box 361, Silverton  
Pres: A G Tilton  
Mgr: Ennis Cole  
**MAY DAY MINE,** 3 mi NE of Silverton  
underground, Zn, Pb, Ag, Cu, Au

**MCCRISTY & SWERDFEGER**

Boulder  
**OPHIR MINE,** underground, W  
Under devel

**MENDOTA FROSTBERG**

**MINING COMPANY**  
Box 6630, Stockyards Station,  
Denver  
**MENDOTA GROUP,** Silver Plume  
Supt: Andrew Holm

**MIDNIGHT MINING CO**

Box 188, Aspen  
Pres & Gen Mgr: F J Willoughby  
VP: F T Willoughby  
Sec: F M Willoughby  
**MIDNIGHT MINE,** 7 mi S of Aspen,  
underground, Ag, Pb, Zn  
Prod: 40 tons  
**75-TON FLOT MILL**  
Idle

**MILE HIGH MINING CO**

Silver Plume  
Mgr: Lawrence Schreiner  
**SMUGGLER MINE,** Silver Plume,  
Pb, Zn, Ag

**MINE EQUIPMENT CO**

Myrtle Dr, Jacksonville, Texas  
Owner: Cale Godfrey  
**JENSEN TUNNEL & WIDOW WOMAN**  
**MINES,** nr Central City, Au, Ag, Pb, Zn  
**GRAY-FLOT MILL**  
Idle

**MINERALS ENGR CO**

801 Fourth Ave, Grand Junction  
Pres: Blair Burwell  
VP & Gen Mgr: R G Sullivan  
Sec: A F Boyd  
Treas: W G Haldane  
Purch Agt: Preston Welch  
**DIAMOND & LONGHOLE DRILLING**  
**CONTRACTORS**  
(See Montana)

**MOHAWK MINES**

c/o Walter Eneyart  
Box 154, Breckenridge  
Oprs: Eneyart & Taylor  
**MOHAWK & RADICAL MINES,**  
Summit Co

**MOLYBDENUM CORP**

**OF AMERICA**  
Idaho Springs  
**URAD MINE & MILL**  
(See Calif, New Mex & East)

**MONO DIAMOND JOE MINES**

Idaho Springs  
Mgr: Arthur Portenier  
**MINE,** Clear Creek Co  
Idle

**MONTANA MNG & DEVEL CO**

Idaho Springs  
Pres: Maynard Sinton  
Mgr & Purch Agt: James Anderson  
**LAMARTINE MINE,** Clear Cr Co,  
underground, Au, Pb, Zn  
**LAMARTINE MILL**  
Supt: G H Anderson

**MOORE, HOGG & HONEYCUTT**

c/o Homer Moore  
2719 Wadner Ave, Colorado Springs  
**GOLDEN WONDER MINE,** Turret dist  
nr Salida, Au, Ag

**MORRILI, J W**

Uravan  
**HENRY CLAY #2,** Montrose Co, U

**NABOB DEVEL CO**

814 Majestic Bldg, Denver  
Pres: C R Froman  
VP: G F Crites  
Treas: C L Morron  
Gen Mgr: Pearl Hubbard  
**NABOB MINE,** 3 mi S of Lawson,  
underground, Ag, Pb, Au, Cu  
Supt: G W Crites  
Met & Assay: Charles Parker  
Idle

- NATOMAS CO**  
Fairplay  
DREDGE #1, Park Co., Au, Ag  
Local Supt: Webb Skinner  
Idle  
(See Calif., Nevada)
- NEESHAM MNG CO**  
Nucila  
Gen Mgr: Glenn D Neesham  
PAWN SPRINGS #12 MINE, Bull Canon,  
30 mi S of Uruan, underground, U, V  
Prod: 10 tons
- NEVADA MINES CO**  
Box 1102, Bonanza  
Pres: Walter Timney  
Gen Mgr: J G O'Brien  
CORA MINE, Au, Ag, Cu, Pb, Zn  
SMELTER  
Foreman: Curtis Quinn  
Assay: E E Smith  
(Leased to Lester Cahill)
- NEW DOMINION MNG CO**  
Ophir  
Mgr: Randolph Belisle  
NEW DOMINION MINE, Ophir,  
Au, Ag, Pb  
GRAV MILL
- NEW JERSEY ZINC CO,**  
EMPIRE ZINC DIV  
Gilman  
Gen Supt: Empire Zinc Div.  
F J Malott  
Supt: Gilman Oper: W L Jude  
Plant Supt: Harold Stienmuer  
Engr & Geol: R E Radaabaugh  
Personnel: Frank Sherwood  
Accountant: R E Sunderberg  
EAGLE MINE, underground, Pb, Zn  
Mine Supt: R L Sayers  
600-TON FLOT MILL  
Mill Supt: J Nelson  
(See New Mex., South & East)
- NEW MONARCH LEASE**  
Box 939, Leadville  
NEW MONARCH GROUP, Stampton,  
underground, Au, Ag, Cu, Pb, Zn  
25-TON GRAV PILOT MILL  
Prod: 300 tons monthly
- OLD HUNDRED GOLD MNG CO**  
Box 448, Silverton  
Pres: C N Kimball  
VP: P W Neuschwander  
Gen Supt: W G Sandell  
GARRY-OWEN MINE, 6 mi NE of  
Silverton, undgd, Pb, Zn, Cu, Ag, Au,  
under devel  
Mine Foreman: Albert White  
100-TON FLOT MILL, Cunningham  
Gulch, idle
- ORTMAYER MNG CO**  
Box 854, Grand Junction  
Mgr: E Haldane  
MINES, San Miguel Co., U, V  
EMPIRE GROUP, McIntyre dist
- OSCEOLA MNG & MLG CORP**  
Silverton  
Pres & Gen Mgr: A B Crosby  
VP: J H Harvey  
Sec: Addie G Crosby  
NEW GREEN MOUNTAIN MINE,  
3 mi E of Silverton, undgd, Pb, Zn, Cu,  
Ag, Au  
50-TON FLOT, LACKAWANNA  
MILL, 1 mi NE of Silverton  
Idle
- OUTLET MNG CO**  
Box 75, Creede  
Treas: W T Jackson  
PHOENIX MINE, Mineral Co., Pb, Zn
- OZARK-MAHONING CO,**  
MNG DIV  
Gen Supt: R K Wisco  
NORTHGATE MINE, 4 mi N of  
Cowdrey, undgd & surface, CaP<sub>2</sub>  
Mine Supt: M P Cloonan  
Asst Mine Supt: B E Neher  
Mine Engr: F H Hansen  
FLOT MILL  
Mill Supt: V C Hays  
Asst Mill Supt: R F Perkett  
Assayer: J A Cornell  
JAMESTOWN MINE, Jamestown,  
underground, CaP<sub>2</sub>  
Mine Supt: H B Williamson  
FLOT MILL  
Mill Supt: V C Hays  
Asst Mill Supt: W D Wagner  
Assayer: O C Young  
(See Central, New Mex., East)
- P M LEASERS**  
Box 176, Empire  
Mgr: C B Myers  
GOLD FISSURE GROUP, Clear Cr Co  
Idle
- PARK CITY CONS MINES CO**  
Gunnison  
Gen Mgr: Nolan Probst  
KEYSTONE MINE, Crested Butte,
- 29 mi N of Gunnison, undgd, Zn, Pb, Cu, Ag  
Under devel  
(Operated by Amer Smelt & Refin Co)  
(See Utah)
- PAYMASTER MINES**  
Breckenridge  
Opr: S P True  
MINE, Summit Co., Montezuma dist
- PRIDE OF THE WEST, INC**  
Box 422, Silverton  
Agent: C Leslie Larson  
PRIDE OF THE WEST MINE,  
San Juan Co., Zn, Pb, Ag, Au
- PURPLE TOP MNG CO**  
Greenwood Springs  
Pres & Gen Mgr: I A Baillie  
VP: Les Baillie  
HUMMER #1, 15 mi NE of Leadville,  
underground, Pb, Ag, Zn  
Geol: George Garry  
PURPLE TOP MINE, 14 mi NE of  
Leadville, undgd, Pb, Ag, Zn  
Supt: Leslie Baillie  
Idle
- QUARTZ HILL METALS DEV**  
Russell Gulch  
Owner & Gen Mgr: J N Thouvenell  
Met & Geol: R R Hinckley  
DELMONICO, QUARTZ HILL &  
FEDERAL CLAIMS, Gilpin Co.,  
Au, Pb, Cu, Ag  
75-TON FLOT MILL
- RAINBOW PLACER INC**  
Rm 308, 1030 15th St, Denver 2  
Pres: Samuel Johnson  
Sec: Martha V Keene  
MINE, TIN CUP, 35 mi NE of  
Gunnison, surf & placer, Au, Ag, Cu  
Idle
- REALTY CO, THE**  
937 US Nat'l Bank Bldg, Denver 2  
Pres & Gen Mgr: Chandler Weaver  
VP: Ray A Bennett  
Sec: L D Allen  
CALHOUN GROUP, WOOD, BEZANT  
MINES, Box 602, Central City,  
1 1/2 mi SW of Central City, Gilpin Co.,  
underground, Au, Ag, Cu, Pb, U  
Under devel  
Mine Foreman: Henry Ress  
(See Utah)
- RESURRECTION MNG CO**  
Box 936, Leadville  
Pres: Fred Searls, Jr  
Gen Mgr: B B Greenlee  
Mine Supt: J S Wright  
Gen Mine Foreman: C N Stout  
Mech Engr: William R Doyle  
Master Mech: C F Ducotey  
Asst Master Mech: Loren Anderson  
Chief Elec: Norman Schroeder  
Chief Engr: John Livermore  
Chief Acct: F B Bochaty  
Safety Engr: Elsie Ray  
RESURRECTION #2 MINE,  
Leadville, undgd, Zn, Pb, Au, Ag  
Foreman: C E Wakley  
YAK TUNNEL OPERATION,  
Leadville, undgd, Zn, Pb, Au, Ag  
Foreman: Jack Hawn  
500-TON FLOT MILL, Leadville  
Mill Supt: K L Tatman  
Mill Foreman: William B Weldrum  
(See Newmont Mng Corp, East)
- REVENUE MINES**  
Ouray  
Mgr: M Campbell Dann  
REVENUE MINE, Ouray Co., Zn, Pb, Ag
- REYNOLDS MNG CORP**  
Poncha Springs  
MINE, undgd & surf, fluorspar  
(See Ariz., Central, South)
- RHINE, A R**  
2550 Yarrow St, Denver  
GENTER TELLER MINE  
Montezuma, Pb, Zn
- RICO ARGENTINE MNG CO**  
Rico  
Pres & Gen Mgr: S B Hinckley  
VP: J C Johnson  
Sec-Treas: L J Lerwill  
Purch Agt: J F Koenig  
ARGENTINE, SILVER SWAN &  
MT SPRINGS MINES, near Rico,  
underground, Pb, Zn, Ag, Cu, Au  
140-TON FLOT MILL  
Supt: C W Dahlberg  
Assay: C H Tuller
- ROBERTS & CO**  
Leadville  
DOLLY LEASE, Lake Co  
Prod: 150 tons monthly
- ROBUSH, JOHN & CO**  
Cripple Creek  
Oprs: John & Earl Robush  
EL PASO MINE, Teller Co
- RODGERS, J & E CROOK**  
Nederland  
TENNESSEE MINE, S of Nederland,  
underground, W  
Under devel
- ST LOUIS LEASE**  
PARTNERSHIP  
c/o Joseph Kerzon, Leadville  
ST LOUIS MINE, Lake Co  
Idle
- SAN JUAN MINES CO**  
Silverton  
Oprs: J M Bradley & Assoc  
SILVER LEDGE MINE, San Juan Co  
Idle
- SHEANDOAH-DIVES**  
MNG CO  
Silverton  
VP & Gen Mgr: Charles A Chase  
Metal: James Cole  
Geol Engr: Joe Robinson  
Pur Agt & Ch Clk: Edwin A Larson  
MINE, 2-6 mi NE of Silverton,  
underground, Pb, Zn, Cu, Au, Ag  
Mine Supt: John Holmgren  
Mine Engr: Joe Robinson  
Under devel  
750-TON GRAV-FLOT MILL  
Mill Supt: Aldo Bonavida  
Asst Mill Supt: Jim Cole  
(See Central)
- SILVER BAY MINES, INC**  
Silverton  
BLACK HAWK, OCCIDENTAL &  
BULLION KING MINES, San Juan Co  
Under devel
- SILVER BELL MINES CO**  
434 U S Nat'l Bank Bldg, Denver 2  
Pres & Gen Mgr: E H Sanders  
Gen Supt: A A Smith  
SILVER BELL MINE, Ophir, Au, Ag,  
Cu, Pb, W  
150-TON FLOT MILL  
Engr: C R Wilfley  
CARBONERO MINE, Ophir, Ag, Pb, Zn  
50-TON MILL  
(See Utah)
- SILVER SHIELD MINING &**  
MILLING COMPANY  
704 Newhouse Bldg, Salt Lake City  
U, Utah  
Pres: Mary Kyo Ellsworth  
VP & Gen Mgr: L E Stein  
Sec: Samuel Bernstein  
Gen Supt: Phil W Page  
MINE, Box 544, Ouray  
Under devel  
250-TON CUSTOM FLOT MILL,  
under construction
- SKALLA, A F**  
Uravan  
Gen Mgr: A F Skalla  
MONOGRAM MINES, 30 mi S of  
Uravan, underground, U, V  
Foreman: J R Skalla  
PAWN SPRINGS MINE #8 & 12,  
underground, U, V, under devel  
ANNA MAY & DOG TAIL MINES,  
Montrose Co., U
- SLATE RIVER MNG CO**  
Crested Butte  
Gen Mgr: R E Simpson  
MICAUBER MINE, 8 mi W of  
Crested Butte, Zn, Pb, Cu, Ag  
Prod: 30 tons  
Foreman: Dwayne Gordon  
MONTEZUMA MINE, 16 mi SW of  
Aspen, idle
- SLIDE MINES, INC**  
401 Security Bldg, Denver  
SLIDE & BLACK CLOUD MINES,  
10 mi SW of Boulder, Au, Ag, Pb, Cu, Zn  
125-TON GRAV FLOT MILL  
Idle
- SPRAY, EDWIN C**  
1537 Washington St, Denver 5  
SWEET HOME MINE, Alma, 4 mi up  
Buckskin Gulch, undgd, Ag, Cu, Pb, Zn  
Idle
- STAMINA MNG & MLG CO**  
Hillside  
Pres: W B Porch, Jr  
Gen Mgr: W B Porch  
MINE, underground, Au, Ag, Cu  
Supt: E F Stacy  
75-TON GRAV-FLOT MILL  
Idle
- STONE, HAROLD**  
Uravan  
ROCK HAVEN CLAIM, Uravan area, U  
(Leased to U S Vanadium)
- STONE, J W, MINES**  
Ohio  
WAYNE, BERTHA, BONANZA  
QUEEN, BUCKEYE CHIEF MINES,  
Ohio, Au, Ag, Pb  
12-TON MILL
- STRATTON C. PLE CREEK**  
MNG & DEVELOPMENT CO  
Box 178, Colorado Springs  
Pres: D P Stratton  
VP: C W Chant  
Sec-Treas: H L Jones  
MINES, Box 146, Cripple Creek  
on Bull & Globe Mts  
Mine Supt: J H Jones
- STURM MINING CO**  
Rt 12, Box 253, Grand Junction  
Pres & Gen Mgr: Fred Sturm  
VP & Purch Agt: Donna Sturm  
Sec-Treas: Donna Sturm  
Mech Engr: West Plazm  
Safety Engr: Lewis Sturm  
ELIZABETH GROUND, Mesa Creek  
64 mi SW of Grand Junction,  
surface, U, V  
Prod: 10 tons
- SUMMITVILLE LEADS MINE**  
Summitville  
Gen Mgr: G T Potts  
MINE, Cu, Au, Ag  
Supt: Frank Sigford  
300-TON CYAN-FLOT MILL  
Supt: O P Bradley  
Idle
- TANNER & SMITH**  
Boulder  
MINE, W concentrate
- TEAL & ASSOCIATES**  
Box 37, Boulder  
Pres: G H Teal  
RED SIGN MINE, Boulder &  
Supt: S M West  
25-TON GRAV MILL  
Supt: W E Swanson
- TELLER BASIN MNG & MLG**  
Montezuma  
Mgr: L E Newell  
CHAUTAUQUA MINE, Summit Co
- TELLURIDE MINES, INC**  
Telluride  
Pres: E S McCurdy  
VP: John Ferguson, Jr  
Gen Mgr: C F Parker, Jr  
SMUGGLER UNION & TOMBOY GOLD  
MINES, San Miguel Co., Au, Ag, Pb, Zn  
Supt: T E McCandless  
Engr: C E Melbye  
550-TON GRAV-FLOT MILL  
Asst Supt: Carl M Ings
- TIDWAY & SCHUMWAY**  
Naturita  
THUNDERBOLT MINE, Montrose Co
- TORRES, DAVE**  
Naturita  
MAY DAY MINE, San Miguel Co., U
- TREASURE MOUNTAIN GOLD**  
MNG CO  
202 Midland Savings Bldg, Denver  
Pres: Guy L V Emerson  
Sec: A W Fischer  
SANDIAGO, SAN JUAN, QUEEN,  
GOLDEN FLEECE & SCOTTA MINES  
Silverton, undgd, Au, Ag, Pb, Zn  
Under devel  
Mine Supt: Merle D Lloyd  
25-TON FLOT MILL, Sandiagotown,  
Idle
- TRONIMEL, JESS**  
Gateway  
FLAT TOP MESA, Mesa Co., U
- TYONE MINING CO**  
Box 488, Idaho Springs  
Partners: Buerrin, Smith & Fenwick  
TYONE MINE, Cripple Creek  
Supt: W D Fincle  
Assay: George Treder  
Under devel
- UNITED EMPIRE GOLD**  
MINES & UNITED MINES CO  
13 Citizens Nat'l Bank Bldg, Boulder  
AMERICAN MINE, Au, Ag, Cu, Pb, Zn  
Idle
- UNITED GOLD MINES CO**  
Box 127, Cripple Creek  
Pres: M E Shoup  
VP & Gen Mgr: Max W Bowen  
Gen Supt: C H Carlton  
VINDICATOR & PORTLAND MINES  
Victor, underground, Au, Ag  
Idle
- UNITED LEAD & SILVER CO**  
Box 53, Lawson  
Mgr: D O Shelton  
DRUMMOND MINE, Lawson, Clear  
Creek Co., Au, Ag, Pb
- UNITED MNG & LEASING CO**  
Box 246, Central City  
Pres: Van R McKay  
EUREKA-ESSEX MINE, Zn, Pb, Au  
Under devel



**T S GYPSUM CO**  
GYPSUM MINE, Loveland, surface  
(See Colorado, Nev. Texas, Utah,  
Wash., Idaho, Superior, Central & East)

**U S VANADIUM CO. A DIV  
OF U S CARBIDE & CARBON  
CORP.**

Grand Junction  
Gen Mgr: A P Cortelyou  
Mgt. Mines & Explor: J W Hill  
Gen Supt: A Q Lundquist  
Supt of Mines: J P Brenton  
Nine Supt: E M Paris  
Purch Agt: L E McCarty  
RIPLE MINE & MILL, Rifle, 65 mi E  
of Grand Junction, U. V.  
Mill Supt: H Peterson  
GRAVAN MINE & MILL, Uravan, 92  
mi S of Grand Junction, U. V.  
Mill Supt: R D Van Zante  
MINES, Garfield, Mesa, Montrose &  
San Miguel Cos., underground &  
surface, U. V.  
(See Calif., Nev., Utah, East)

**UTZ LODE CO**  
Box 500, Solida  
Treas: Harold R Koester  
MADONNA MINE, Au, Ag, Cu, Pb, Zn  
Under devel

**VALLEY MINES, INC**  
Box 939, Leadville  
Pres: Fred H Rice  
VP & Engr: C M Scott  
MINE, Au, Ag, Cu, Pb, Zn  
Prod: 200 tons  
(Leased to Erickson & Connors)

**VANADIUM CORP OF AMER**  
Box 1020, Durango  
VP & Gen Mgr: D W Viles  
Metal: R G Vesper  
Exec Engr: Leroy Parker  
Purch Agt: John Blackburn  
MINES, scattered over 200-  
square-mile area, underground  
& surface, U. V.  
Dir, Plateau Oper: Page Edwards  
Mine Supt: R L Anderson  
200-TON ROAST LEACH EX, Durango  
Mill Supt: John A Maxwell  
Gen Master Mech: Troy Newland  
Mines Auditor: John W Blackburn  
NATURITA MINES & MILL, Naturita,  
100-ton roast leach extractor, U. V.  
Gen Supt: W L Anderson  
Mine Supt: E B Daggett  
Mill Supt: L E Daniels  
NEDERLAND MINE & MILL, Neder-  
land, 100-ton tungsten concentrator, W  
Gen Supt: D E Harrison  
Mine Supt: Everett Blackburn  
(See Ariz., New Mex., Utah & East)

**VENTURE LEASING COMPANY**  
Silverton  
GOLD PRINCE MINE, 17 mi N of Sil-  
vertan, underground, Pb, Zn, Cu.  
Au, Ag  
Prod: 50 tons  
50-TON FLOT MILL, Portal

**VERMICULITE MNG CO**  
Box 109, Westcliffe  
Pres: Stanley Gray  
GEM PARK MINE, surface  
150-TON GRAV-FLOT MILL  
Supt: Dick Colgate  
Mill Foreman: T A Johnson

**WADE, TROY E & CO**  
Cripple Creek  
VINDICATOR MINE, Cripple Cr dist,  
Au

**WALKER, ART R**  
Silverton  
QUEEN ANN MINE, San Juan Co  
Under devel

**WEEMS-WEAVER MNG CO**  
Box 209, Salida  
ANTORO MINE, Box 387, Salida,  
underground, Au, Ag, Pb, Zn, Cu  
(Leased to W E & S E Burleson)

**WELLS, LEO O**  
Breckenridge  
MANERVA MINE, Summit Co

**WESTERN GOLD MINES, INC**  
Crown King, Ariz  
Pres: Silas P Silverman  
MINE, Rito Seco property, Costilla  
Co, Au  
Under devel

**WESTERN NON-METALLICS**  
130 "D" St, Pueblo  
GRINDING PL, mica  
Prod: 400 tons per month

**WESTERN STATES MINING CO**  
190 Alhambra St, San Francisco 23  
Pres: C D Goodman  
Sec: Lillian Witt  
AJAX MICA MINE, Box 396, Idaho  
Springs, surface, mica  
Idle

**WILLIAMS, LAWRENCE**  
Gateway  
BLACK MAMMY MINE, Mesa Co, U

**WILLIAMSON & SON**  
728 U S Nat'l Bank Bldg, Denver  
Gen Mgr: H M Williamson  
WANO GOLD MINE & FLOURSPAR  
PROPERTIES, floorspar  
100-TON GRAV-FLOT MILL

**WILLMARTH MINES**  
Georgetown  
WILLMARTH SILVER & LEAD MINES  
2 mi S of Bakerville, Pb, Ag, Au, Zn  
Idle

**WRIGHT BROTHERS**  
Uravan  
PROD CLAIM, Uravan area, U  
(Leased to U S Vanadium)

**WRIGHT, WARREN**  
Gateway  
VANAKING #1 & 2, Mesa Co, U

**YORK INVESTMENT CO**  
Kokomo  
KIMBERLY PROP, Summit Co  
COLONEL SELLERS MINE

**ZODOMOK MINES, INC**  
3270 Main St, Durango  
Pres & Gen Mgr: W E McCormick  
VP: Albert Zuffli  
Sec: Fred Kipp  
Gen Supt: Don Deluche  
BESSIE G MINE, 18 mi W of Durango,  
underground, Au, Ag  
Under devel

## IDAHO

**ACE GOLD MINES INC**  
315 Weisgerber Bldg, Lewiston  
Pres: B J Nigg  
Gen Mgr: F C Funke  
NEW YORK GROUP, Ten-Mile dist,  
underground, Au, Ag  
Supt: Carl Funke  
Foreman: H W White  
50-TON GRAV FLOT MILL  
Idle

**AJAX MINE**  
Shoshone County, Lelande dist  
MINE, Ag, Pb, Zn  
Idle  
(Leased to J Hodges, Wallace)

**AMERICAN SILVER MNG CO**  
123 W 4th Ave, Spokane, Wash  
Pres & Gen Mgr: E W Conrad  
VP: J M Henneke  
Sec: L B Conrad  
Geol: John B Platts  
MINE, Osburn, 1 mi S of Osburn,  
underground, Ag, Cu, Au  
Idle, under devel

**AMERICAN SMELTING &  
REFINING CO**  
Box 440, Wallace  
Mgr: J E Berg  
Asst Mgr: J C Kieffer  
Purch Agt: P L White  
JACK WAITE MINE, Duthie, under-  
ground, Pb, Zn, Ag  
Supt: C H Blackwell  
300-TON FLOT MILL  
Supt: Harvey LeGault  
(Operated under agreement with  
Jack Waite Mining Co)  
GALENA UNIT, 3 mi W of Wallace,  
underground, Pb, Zn, Ag  
Under devel  
Mine Supt: Norman Visnes  
(See Fed Mng & Smelting, Vulcan &  
Callahan Zinc-Lead)  
(See Ariz., Calif., Colo., Mont., New Mex.,  
Utah, Wash., Tex., Central & East)

**AMY SILVER-LEAD CO**  
Box 358, Kellogg  
Pres & Gen Mgr: C Anderson  
Sec: Christine Brown  
AMY & AMY MATCHLESS MINES,  
8 mi W of Kellogg, Ag, Pb, Zn  
FLOT MILL  
Idle

**ANACONDA COPPER MNG CO**  
Conda  
VP: Chg West Oper: C H Steele  
Gen Mgr: West Mng Oper: A C  
Bigley  
MINE, Conda, phosphate rock,  
underground & surface  
Mgr: E I Renouard, Jr  
Supt: L E Traeger  
Foreman: W J Dezell  
450-TON CRUSHING & DRYING PL  
SUNSET GROUP, Wallace, Beaver &  
Summit dist, Pb, Ag, Zn (under lease)  
(See Calif., Nev., Mont., Utah & East)

**ANCHOR GROUP**  
Kellogg  
Opr: Frank McKinley  
MINE, Summit dist, Shoshone Co  
Ag, Cu, Pb, Zn

**ANCHOR MINES, INC**  
Box 2178, Boise  
Pres: C W W Turner  
Sec: W H Buckingham  
Legal Agt: Frank Martin, Jr  
GOLDEN ANCHOR MINE, 50 mi E of  
Riggins, Au, Ag  
FLOT MILL  
Idle

**ANDERSON LEASE**  
Kellogg  
ORO MINE, Boise, Basin dist, Boise Co

**ANDERSON, T C**  
Blackfoot  
NICHOLIA SLAG, Nicholia dist,  
Lemhi Co, Ag, Cu, Pb, Zn  
Idle

**ANTIMONY GOLD ORES**  
246 Sonna Bldg, Boise  
Pres: J J Oberbiling  
SUGAR CREEK GROUP, Yellow Pine  
dist, Au, Ag, W  
JOHNSON CREEK GROUP, idle

**ANDERSON, A G**  
Mackay  
HORSESHOE MINE, 4 mi SW  
of Mackay, undergrd, Pb, Ag  
Under devel

**APACHE MINES CO**  
123 S Maple St, Jerome  
Pres: T C Butler, Jr  
VP: L M Lindsey  
Sec: H P Jayne  
Treas: Guy S Simons  
Gen Mgr & Pur Agt: Frank Humphrey  
Met: Delmar Jones  
Elec & Mech Engr: O L Bishop  
APACHE MINES, Box 387, Hailey, 4 mi  
W of Hailey, underground & surface,  
Ag, Pb, Zn, Au  
Under devel  
Prod: 110 tons  
Mine & Mill Supt: Frank Humphrey  
Asst Mine & Mill Supt: P O Landburg  
Mine Foreman: Emmet Yadan  
150-TON FLOT MILL

**ATHO & SAGE**  
Rocky Bar  
GOOD LUCK MINE, Elmore Co,  
Bear Creek & Featherville dist  
Owners: Lath Atho & Howard Sage

**AUXER GOLD MINES, THE**  
Sand Point  
Pres: Leland C Johnson  
VP & Gen Mgr: James Campbell  
Sec: A R Nelson  
AUXER MINE, 7 mi NE of Hope,  
underground, Au, Ag, under devel  
BOSTON GROUP, Bonner Co,  
Pend d'Oreille dist, Au, Ag, Idle

**BALTIMORE-CAMAS  
MINES, INC**  
601 Eastman Bldg, Boise  
Pres: C E Carver  
Dir: C P Williams  
CAMAS GROUP, Hailey, Au, Ag, Pb, Cu  
150-TON FLOT MILL  
Idle

**BANNER-IDAHO MINES, INC**  
Scott Bldg, Wallace  
Pres: John Davis  
VP: C W Bentley  
Sec-Treas: J W Coumerilh

**BANNOCK APEX MINES, INC**  
Arbon  
Pres: Lee A Newport  
MINE, Arbon, Cu, Pb, Zn, Au, Ag, Cr,  
Ni, Fe, Mo, V, Mn  
Idle

**BAYHORSE MINE, INC**  
Challis  
Pres: O J Salisbury  
VP & Gen Mgr: W B Swigert  
Treas: O O Langness  
PACIFIC, BEARDLEY, RAMSHORN,  
& FOREST ROSE GROUPS, 15 mi SW  
of Challis, Pb, Ag, Zn, Cu, Au  
100-TON GRAV FLOT MILL

**BEHRENS BROS**  
Eik City  
Mgr: W T Behrens  
LITTLE MOOSE CR PL, Eik City  
dist, Idaho Co, Au, Ag

**BELL, DAVID E**  
Mackay  
ALURA, McFADDEN & YANKEE  
PORK MINES, Custer Co, Ag, Pb, Zn

**BENTON MINE**  
Burke  
Opr: A E Toft  
MINE, Lelande dist, Shoshone Co,  
Ag, Pb, Zn

**BETTY MINE**  
Fairfield  
Opr: Ted Heath  
MINE, Little Smoky & Carriestown  
dist, Camas Co, Ag, Pb, Zn

**BEVAN, MAGNUS**  
North Fork  
SAWLOG GROUP, 36 mi S of Salmon  
City, underground & surface, Au  
under devel  
50-TON GRAV MILL

**BIG FOUR MINE**  
Riggins  
Opr: Scott & Howard Williams  
MINE, Florence & French Cr dist,  
Idaho Co, Au, Ag

**BIRCH CREEK MINING CO**  
250 Broadway, Idaho Falls  
Pres & Gen Mgr: George Brunt  
Sec & Mgr: L S Merrill  
SCOTT MINE, Dalton, Ag, Pb  
Engr: R T Shane

**BLACK BEAR MINES CO**  
Wallace  
Pres: W H Hanson  
BLACK BEAR GROUP, near Gem,  
3 mi S of Wallace, Pb, Zn, Ag  
(Leased to G W Ringel)

**BLUEBIRD MINE**  
c/o M C Settles, 2020 Pacific,  
Spokane, Wash  
MINE, Lemhi Co, Ag, Cu

**BLUE GULCH MINE**  
318 Juniper St, Nampa  
Mgr: T A Gregory  
MINE, Owyhee Co, Au, Ag

**BLUE JACKET MNG CO**  
Box 2614, Boise  
Pres: Leon K Carson  
Sec: Jack Murdoch  
MINE, 50 mi N of Elko, Nev  
Under devel

**BLUE SKY MINE**  
Wallace  
Opr: N Overman  
MINE, Yreka dist, Shoshone Co,  
Ag, Pb, Zn  
Idle

**BOB MINE**  
Golden  
Opr: Rudolph & Hayes  
MINE, Ten Mile dist, Idaho Co,  
Au, Ag

**BOBBY ANDERSON MINE**  
Kellogg  
Opr: Al Osbourne  
MINE, Yreka dist, Shoshone Co,  
Ag, Cu, Pb, Zn

**BOISE KING PLACERS**  
Twin Springs  
Pres: G G Titrell  
MINE, Bear Cr dist, dredge, Au, Ag

**BRADLEY MINING CO**  
Bradley Field, Boise  
Exec VP: John D Bradley  
Gen Mgr, Yellow Pine: E E Coleman  
Gen Mgr, Ina: C C Hathorn  
Met: R J McRae  
YELLOW PINE MINE, Stubite,  
surface, Sn, W, Au, Ag, under devel  
Supt: Edwin Adams  
Equip Supt: G R Hansen  
2,400-TON FLOT CONCENTRATOR  
YELLOW PINE SMELTER  
Smelter Supt: Dean Wild  
IMA MINE, Patterson, underground,  
WO<sub>3</sub>, Ag, Cu, Pb  
Mine Supt: Clark C Collins  
Mech Supt: J A Miller  
Mine Engr: E C Winterhalder  
Ch Clerk: Arnold Souders  
160-TON GRAV-FLOT MILL,  
Patterson  
Mill Supt: G N McCall  
(See Calif)

**BROADHURST, L E**  
c/o T C Butler  
3015 Apple St, Rt 5, Boise  
Owner: A K Wilson

Gen Mgr: T C Butler, Jr  
PEARL MINES PROJECT, Pearl,  
30 mi NW of Boise, Pb, Zn, Ag, Au  
Supt: E G Taylor  
PEARL MILL, 25-TON GRAY-FLOT  
Supt: H L Eubanks  
Idle

**BROUGH, FRED J**  
Salmon  
HOPE-SHENON MINE, Lemhi Co, Cu

**BROWN BEAR MINES, INC**  
405 Cedar St, Seattle 1, Wash  
Sec: A A Fagnant  
BROWN BEAR MINE, Pend d'Oreille  
dist

**BUCK HORN MINE**  
Salmon  
Oprs: E G Peron & Ernest Woodman  
MINE, Junction dist, Lemhi Co, Ag, Pb

**BUNKER CHANCE MNG CO**  
Box 809, Kellogg  
Pres: T L Hume  
VP: Ted Schindler  
Gen Mgr: Robert M Gammerl  
MINE, 7 mi S of Kellogg, underground,  
Ag, Pb, Cu  
Under devel

**BUNKER HILL & SULLIVAN  
MNG & CONC CO**  
Box 29, Kellogg  
Pres: S A Easton  
VP & Gen Mgr: J B Haffner  
Asst Sec: I A Robson  
Purch Agt: E P Blott  
MINE, Kellogg, Ag, Pb, Zn  
Supt: S McDougall  
Asst Supt: R S Hooper  
2,000-TON FLOT MILL  
Supt: C Y Garber  
Asst Supt: A P Kroll  
Engr: Austin C Parks  
Mech Engr: A C Stevenson  
SMELTER & 400-TON FUMING PL &  
ANTIMONY PL  
Supt: P C Feddersen  
Asst Supt: J B Schuettenheim

**CABIN MINE**  
Dubois  
Pres: F G Worthing  
MINE, Reno dist, Lemhi Co, Pb, Cu, Ag

**CALERA MINING CO,  
BLACKBIRD DIV (SUBSID OF  
HOWE SOUND CO)**

Cobalt  
Pres: H H Sharp  
Mgr: E B Douglas  
Elec Engr: J P Smith  
Geol: R E Cribbs  
Mech Engr: A W Legard  
Purch Agt: J W Caples  
BLACKBIRD MINE, 42 mi W of  
Salmon, underground, cobalt, Cu  
Under devel  
Mine Supt: R L Soderberg  
Mine Foreman: W O'Neal  
Mine Engr: C J Whitley  
1,000-TON FLOT MILL  
Mill Supt: C O Hower  
Mill Foreman: J Vecchies  
Assayer: D E Cutting  
(See Calera, Utah, Howe Sound,  
Wash & East)

**CANYON CREEK MINES**  
1115 Vermont St, Boise  
Owner: Hal Baker  
MINE, Idaho City, Au, Ag, Cu, Pb, Zn

**CAPITOL SILVER LEAD  
MNG CO**  
Gearon Bldg, Wallace  
Pres: H C Mowery  
VP: Joe Swan  
Sec-Treas: H M Huemann  
MINE, Ag, Pb  
Under devel

**CHALLIS VIEW MINE**  
Challis  
Oprs: Smith & Buchanan  
MINE, Custer Co, Bayhorse  
dist, Ag, Pb  
Idle

**CHAMPION MINE**  
Box 281, Mackay  
Pres: J L Ausich  
MINE, 8 mi S of Mackay,  
underground, Pb, Zn  
Idle, under devel  
Mine Supt: D E Bell

**CHECKMATE MINE**  
Boise  
Opr: Earl Moesman  
MINE, West View dist, Gem Co,  
Au, Ag, Pb, Zn

**CHILDS, ELDON**  
20 E 48th South St, Murray  
HOPEFUL MINE, Custer Co, Pb, Zn  
Idle

**CIRC TWINS MNG CORP**  
Oro Grande  
Pres & Gen Mgr: Ross R Brattain  
VP: Ottile H Brattain  
Sec-Treas: Mary Brattain  
MINE, 2 mi SE of Oro Grande,  
surface & underground, Au, Cu, W  
Under devel

**CLARK, EDWARD B**  
Box 151, Clark Fork  
LUCKY OPAL & SURPRISE GROUPS,  
3 mi NE of Clark Fork, Pb, Zn,  
under devel  
LAWRENCE MINE LEASE, Pb, Ag, Zn

**CLAYTON SILVER MINES**  
Box 469, Wallace  
Pres & Gen Mgr: Wm Yeaman  
VP: A H Featherstone  
Sec: Ray Morrison  
MINES, Clayton, undergrd, Au, Ag, Cu,  
Pb, Zn  
Mine Supt: H E Strong  
Engr: Norman Smith  
100-TON FLOT MILL  
Mill Supt: Alfred Nelson

**CLEARWATER DREDGING CO**  
Spokane, Wash  
CROOKED RIVER PL, Elk City dist,  
Idaho Co, Au, Ag

**COEUR D'ALENE MINES  
CORP**  
Gearon Bldg, Wallace  
Pres: H C Mowery  
VP: P E Jacobs  
Sec-Treas: W A Callaway  
MINERAL POINT MINE, Osburn,  
1 mi S of Osburn, Ag, Cu, Sb,  
under devel  
Mine Foreman: Steve Vaclav  
Mine Engr: John B Platts  
600-TON FLOT MILL, idle

**COEUR D'ALENE SILVER  
GIANT, INC**  
Box 838, Kellogg  
Pres & Gen Mgr: Harry G Alway  
VP: R E Newman  
Sec-Treas: Wayne A Brainard  
MINE, E Fork of Big Cr, Kellogg,  
Ag, Pb, idle  
Engr: John B Platts  
82 LOPE CLAIMS, Shoshone Co,  
under working contract

**COME BACK MINE**  
Garden Valley  
MINE, Boise Co, Boise Basin  
dist  
(Leased to Boise Basin Mng Co,  
803 Iowa St, Boise)

**COMET & FAIRVIEW MINES**  
Hailey  
Oprs: Davis & Parke  
MINES, Mineral Hill & Camas  
dist, Blaine Co, Ag, Pb

**CONTINENTAL MNG CO**  
Box 469, Wallace  
VP: J E McKay  
Sec-Treas: H F Magnuson  
Gen Mgr: C E Small  
CONTINENTAL MINE, Porthill,  
Pb, Ag, Zn, Cu  
500-TON HMS PL, 100-TON FLOT  
MILL  
Mill Supt: J J Snider

**CRAMPTON, T S**  
Centerville  
CLAIMS, Pioneerville, Au, Zn  
Idle

**CROCKER, GROWER & JUDD**  
Bellevue  
QUEEN BESS MINE, Mineral Hill &  
Camas dist, Blaine Co, Ag, Pb

**CUBA MINING CO**  
Wallace  
Pres: W H Hanson  
MINES, 2 mi From Wallace, Ag, Pb  
Under devel

**CUDDY MOUNTAIN MNG CO**  
711 Hutton Bldg, Spokane 8, Wash  
Pres & Gen Mgr: W R Bellows  
Sec: Wellman Clark  
BLUE DOG MINE, Weiser, surface, Au  
Idle

**CUSTER COPPER CORP**  
4212 Franklin Rd, Boise  
Pres & Gen Mgr: W P Barton  
VP: David E Bell  
EMPIRE MINE, MacKay, undergrd,  
Cu, Au, Ag  
100-TON FLOT MILL  
Idle

**DAN MURPHY LEASING CO**  
Wallace  
ORO FINO MINE, Summit dist,  
Shoshone Co, Ag, Pb, Zn

**DARLAND, JOHN & T A**  
Cuprum  
SO PEACOCK MINE, 48 mi NW of  
Council, undergrd, Au, Cu, Ag  
Idle

**DAVIES, J R & SONS**  
Boise  
PRINCESS BLUE RIBBON MINE,  
Beaver dist, Camas Co, Ag, Pb  
Idle

**DAY MINES, INC**  
Box 1010, Wallace  
Pres & Gen Mgr: H L Day  
Sec: S F Hettfield  
Purch Agt: G T Kelton  
AURUM MINES, 2 mi NW of Republic,  
underground, Au, Ag, idle  
DAYROCK, MONITOR, TAMARACK,  
SHERMAN & HERCULES MINES,  
Wallace, underground, Pb, Zn, Ag  
Supt: Rollin Farmin  
4 FLOT MILLS  
Supt: L A Grant

**DENVER DEVELOP CO**  
Box 989, Kellogg  
Partners: Bell, Norgaard &  
Nugent  
Purch Agt: D Bell  
LITTLE PITTSBURG MINE,  
Pine Cr, underground, Ag, Pb, Zn  
Supt: Inar Norgaard  
Foreman: W B Jarvey  
150-TON FLOT MILL  
Supt: H G House

**DEVIL'S TOE DREDGING  
CO**  
Shoup  
Pres: A P Smothers  
Sec: Dave Hausel  
MINE, 29 mi W of Shoup, dragline  
placer, Au, rare earth  
Prod: 100 yds

**DIAMOND PEAK MINES CO**  
Arco  
Pres: A W Barnes  
Gen Mgr: M M Dahle  
Sec: R C Walker  
BADGER MINE, Arco, Ag, Pb  
Idle

**DOVE MINES**  
Howe  
WILBERT MINE, Howe, Pb, Ag  
Gen Mgr & Purch Agt: W H Gibson  
Mgr: C A Dye  
Foreman: C MacDye  
200-TON FLOT MILL  
Idle

**DONOVAN MINE**  
Hailey  
Oprs: Brooks & Wright  
MINE, Mineral Hill & Camas  
dist, Blaine Co, Ag, Pb, Zn  
Idle

**DOUGLAS MNG CO**  
Box 320, Wallace  
Pres & Gen Mgr: Stanley A  
Easton  
VP: Robert E Sorenson  
Sec: L E Hill  
DOUGLAS MINE, Pine Creek,  
13 mi SW of Kellogg, Pb, Zn  
Under devel  
Prod: 30 tons  
Mine Supt: R G Gordon  
(Devel in coop with Spokane-  
Idaho Mng Co)

**DUNDAS & MORSE**  
Pierce  
CIRCLE OF GOLD MINES #1, 2, 3,  
9 mi E of Pierce, surface  
Under devel

**DUVALL CO**  
210 Eccles Bldg, Ogden, Utah  
VIRGINIA GROUP, Blackpine dist,  
Cassia Co, Au, Ag

**EAST SILVER BELT LEAD  
MINES, INC**  
Box 885, Wallace  
Pres: R E Sorenson  
VP: C H Foreman  
Sec: Eloff Enbom  
MINE, near Mullian  
Idle

**ECHO MINING CO**  
Wallace  
Pres: W H Hanson  
MINES, Burke, Ag, Pb  
Under devel

**EDITH MURRAY MNG CO**  
Wallace  
TERRIBLE EDITH MINE, Summit  
dist, Shoshone Co, Ag, Cu, Pb, Zn

**ELLIS, ELLIS & WILCOX**  
Clayton  
Pres: Alvin E  
Opr: C F W  
SKYLINE MINE, Wyre  
Custer Co, Ag, Pb, Zn  
Idle

**ENDERLIN, PAMEL**  
Stanley  
MEADOWVIEW MINE, 25 mi E  
of Stanley, underground, Zn, W, Ag  
Under devel

**EUREKA SILVER KING  
MINES**  
332 First Nat Bank Bldg, Boise  
SILVER KING GROUP, Taylor  
on South Fork of Salmon River

**FEDERAL MNG & SMELTING  
CO** (A wholly-owned subsidiary of  
American Smelting & Refining Co.)  
316 Bank St, Wallace  
Gen Mgr: J E Borg  
Pers Mgr: L I Morse  
Purch Agt: Percy L White  
Supt of Mines: W J Counts  
Supt of Mills: G O Price  
Engr Supt: W A Boyer  
Met: George Desjarre  
PAGE MINE, Page, underground,  
Pb, Ag, Zn  
Supt: T M Towse  
Asst Supt: C J Ward  
Acct: M G McCord  
Foreman: Phil Desjarre  
500-TON FLOT CONCENTRATOR  
Supt: Roy McKinley  
MORNING MINE, Molan, undergrd,  
Zn, Pb, Ag, Cu  
Prod: 150 tons  
Gen Supt: A P Nelson  
Supt: R E Walters  
Asst Supt: H H Shook  
Foreman: Earl Brasher  
1,200-TON FLOT CONCENTRATOR  
Supt: G S Price  
Asst Supt: G A F Desler  
FRISCO MINE, Gem, underground,  
Ag, Pb, Zn  
Supt: G B Christian

**FLAGSTAFF MINING CO**  
Kennewick, Wash  
Pres: E H Bohman  
MINE, Bear Cr dist, Au, Ag  
30-TON MILL  
Idle

**FOURTH OF JULY MINE**  
Hailey  
MINE, Mineral Hill & Camas  
dist, Blaine Co, Ag, Pb, Zn  
Idle

**GALENA MINING CO**  
Box 237, Wallace  
Pres: A H Featherstone  
Sec: Jerry Graber  
GALENA MINE, 3 mi W of  
Wallace, underground, Pb, Ag  
Idle

**GAMBRINUS SURPRISE  
CO & ILLINOIS MINE**  
Idaho City  
Pres: E T England  
Gen Mgr: C M Loveston  
Purch Agt: J W Duquette  
ILLINOIS & SURPRISE MINES, Ag  
Engr: V E Clayton  
10-STAMP MILL

**GARFIELD SILVER LEAD  
MINES**  
Hailey  
Pres: L F Heagle  
VP: E W Fox  
Sec-Treas: D M Jacobs  
GARFIELD & WESTLAKE MINES  
Hailey, Ag, Pb, Zn, Fe  
Supt: J D Dehlin  
Geol & Engr: Arthur Laxer  
GARFIELD MINE, Madison, Au, Ag,  
Pb, Zn  
Foreman: J Dehlin  
EAGLE BIRD MINE, Little Wood  
dist, Pb, Zn

**GEM STATE CONSOL MINES  
INC**

3620 Sycamore Dr, Boise  
Pres & Gen Mgr: T B Baugh  
VP: J M Rollins  
Sec: Mrs Mary Fleming  
Gen Supt: G E McNamey  
Geol: Don E Anderson  
GEM STATE MINE, Pearl va Exp  
11 mi E of Emmett, undergrd, Au, Ag,  
Pb, Zn  
Under devel  
25-TON GRAY MILL  
**GENERAL MINES CORP  
OF IDAHO**  
416 Empire State Bldg,  
Spokane, Wash  
Pres & Gen Mgr: H G 1904  
VP: Chris Roholt

Sec: E. F. Fisher  
Genl. VP. Wall  
GENERAL MINE, P.C. Star Rt.  
Sawtooth surface, Au, Ag, Cu  
Under devel.

**GIBBONSVILLE MNG & EXPLOR. CO.**  
711 Huron Bldg.  
Spokane, Wash.  
Pres: Walter C. Clark  
VP: William Clark  
Sec: Fred G. Fulton  
Gen Supt: Ernest E. Eddy  
Met: Frank Eichelberger  
GIBBONSVILLE MINE, 3 mi W  
of Kellogg, placer, Pb, Zn, Ag  
Idle  
400-TON FLOT MILL

**GOLCONDA LEAD MINES**  
Box 237, Wallace  
Pres & Gen Mgr: A. H. Featherstone  
VP: J. A. Featherstone  
Sec: H. F. Magnuson  
Gen Supt & Purch. Agt: W. W.  
Featherstone  
Geol: Phil Conley  
GOLCONDA MINE, 2 1/2 mi E  
of Wallace, undergrd., Pb, Ag, Zn  
Prod: 50 tons  
25-TON FLOT MILL, Mullan Rd.  
Wallace  
Mill Supt: C. E. Bloom  
Asst. Mill Supt: Leo Huguennin  
Mill Foreman: Richard Holmberg  
Assayer: Peter Mack

**GOLD COIN MINE**  
Star Rt. 2, Sand Point  
Mgr: J. Bessemer  
MINE, Bonner Co., Ag, Pb, Zn

**GOLD HUNTER MINES, INC.**  
R. 1501, 111 W. Washington St.,  
Chicago 2, Illinois  
Pres: J. D. Murphy  
Gen Mgr: L. M. Norris  
MINE, E. of Mullan, Ag, Pb, Zn  
500-TON FLOT MILL

**GOLDEN DIVIDEND MNG CO.**  
1708 Boise Ave., Boise  
Owner: Chester Lamb  
MINE, Idaho City, Au  
Idle

**GOLDEN RULE MINE**  
McCall  
Opr: George Wikstrom  
MINE, Burdord-Marshall Lake  
dist, Idaho Co., Au, Ag  
Idle

**GOLDEN SEAL MNG & MLG CO.**  
Box 2307, Boise  
Pres: E. K. Lorimer  
Sec: N. German  
MINE, near Dry Cr  
Idle

**GOLDEN STRINGER #1-5**  
Box 95, Atlanta  
Mgr: E. T. Seaton  
MINES, Elmore Co., Au, Ag, Pb, Zn

**GOLDSTONE MNG CO.**  
311 Securities Bldg.  
Seattle, Wash.  
Pres & Gen Mgr: B. W. Porter  
VP: Allen Knight  
Sec: Emil Mottman  
Gen Supt: Walter E. Deighton  
Geol: Arthur Lakes  
Purch. Agt: F. Mills  
GOLDSTONE MINE, Salmon, 21 mi  
SE of Salmon, undergrd., Au, Cu, Pb  
Under devel.  
100-TON FLOT MILL, under const

**GRANADA LEAD MINES INC.**  
Box 217, Wallace  
Pres: E. G. Guedinger  
VP: R. L. Roundy  
Gen Mgr: A. H. Featherstone  
Asst. Gen Mgr: W. Featherstone  
Gen Supt: R. L. Roundy  
Met: Phil Conley  
GRANADA MINE, 2 1/2 mi E of  
Wallace, Pb, Ag, Zn  
Under devel.  
FLOT MILL  
Assayer: Peter Mack

**GREAT WESTERN MINE**  
Aro  
Opr: Roy Hawley  
MINE, Dome dist, Butte Co., Ag, Pb

**GREGOR MINES, INC.**  
1519 First Ave., Seattle 1, Wash.  
Pres: C. H. Mengedoth  
Gen Mgr: W. M. Parsons  
Sec-Treas: C. H. Woodis  
MONO-LITH MINE, Shoup, Au, Ag, Pb  
Mgr & Engr: P. M. Sorenson  
60-TON FLOT MILL  
Foreman: Butch Tibbets

**HACKET, HERBERT H.**  
Riggins  
SHAMROCK GROUP, Florence &  
French Cr., placer-hydraulic-  
dredge, Au, Ag  
Under devel.

**HANSY COPPER & GOLD MINES**  
Box 588, Wallace  
Pres: Osa Belsby  
VP: Osborne Belsby  
Gen Mgr: Sam Peterson  
HANSY MINE, 3 mi S of Adair,  
underground, Cu, Au, Ag

**HARRY ANN MINE**  
Mackay  
Opr: Francis Pern  
MINE, Alder Cr. dist, Custer Co.,  
Ag, Pb, Zn

**HAYDEN HILL CONS MNG CO.**  
612 Chronicle Bldg.,  
Spokane, Wash.  
Pres: W. T. Anderson  
VP: J. B. Phillips  
Sec: C. C. Anderson  
Gen Mgr: R. R. Weideman  
PURIM GROUP, Silver Belt,  
Coeur d'Alene  
(Leased to Silver Dollar Mng.,  
which see)

**HAY FORK MINE**  
Idaho City  
Opr: Hal R. Jarvic  
MINE, Au, Ag  
10-TON MILL  
Idle

**HECLA MNG CO.**  
Box 320, Wallace  
Pres: L. J. Randall  
VP & Geol: R. E. Sorenson  
Gen Mgr: R. W. Neyman  
Sec: John R. Matthews  
Purch. Agt: R. G. Hull  
HECLA MINE, Burke, Pb, Zn,  
idle  
900-TON FLOT MILL, Gem  
Mill Supt: Norman Sather  
Assayer: J. M. Simpson

**HEINE MINES, INC.**  
Meridian, Boise, Bellevue  
Pres: Clinton Barber  
VP: James Hawley  
Sec-Treas: A. L. Heine  
BELLEVUE GOLD GALENA,  
Bellevue, Au, Ag, Cu, Pb, Zn, Mn, V  
24-TON BEAM SMELTER  
Idle

**HEMBREE & ZOOK MNG CO.**  
Box 183, Leadore  
MOUNTAIN BOY MINE, Lemhi Co.,  
Texas dist, Ag, Cu, Pb

**HERMADA MNG CO.**  
Twin Springs  
Pres: Ernest Oberbiling  
Mgr: Gilbert Pearson  
VP: Jess Hawley, Jr.  
Sec-Treas: Carol Oberbiling  
HERMADA MINE, 20 mi W of Atlanta,  
surface  
Prod: 20 tons per month  
TALACHE CUSTOM FLOT MILL,  
Atlanta

**HICKORY-GARRETT MNG CO.**  
Wallace  
HICKORY MINE, Hunter dist,  
Shoshone Co., Ag, Pb, Cu, Zn

**HIGHLAND-SURPRISE CONSOL MNG CO.**  
Gearon Bldg., Wallace  
Pres: Frank J. Luedke  
VP: Henry C. Smith  
Gen Mgr: Robert D. O'Brien  
Sec-Treas: W. A. Callaway  
Mng Engr: T. Klobusicky  
HIGHLAND-SURPRISE MINE,  
Kellogg, 15 mi SW of Kellogg,  
underground, Zn, Pb, Ag  
Prod: 85 tons  
Mine Foreman: Victor A. Giroux  
300-TON FLOT MILL  
Mill Supt: Robert A. Rice

**HILLTOP MINE**  
122 S. 1st St., Pocatello  
Mgr: Joe Hamilton  
MINE, Lemhi Co., Au, Ag, Pb, Cu

**HOPE SILVER LEAD MNG, INC.**  
Box 152, Clark Fork  
Pres: Glenn C. Lee  
VP: Ed Groening  
Sec-Treas: L. P. Larson  
HOPE MINE, underground, Pb, Ag, Zn  
Foreman: E. T. Shields  
Engr: Harold Shields  
150-TON FLOT MILL

**HORSESHOE MINE**  
Mackay  
Oars: Anderson & Lindberg  
MINE, Alder Creek dist, Custer  
Co., Ag, Cu, Pb  
Idle

**HORN SILVER MNG & MLG CO.**  
Wallace  
Pres: W. H. Hanson  
MINES, 3 mi S of Wallace, Ag, Pb  
Under devel.

**HULL LEASE**  
Wallace  
Gen Mgr: H. J. Hull  
Purch. Agt: August Voltolini  
GEM & FRISCO MINES, Gem, Ag, Pb, Zn  
Supt: Harry Voltolini  
100-TON FLOT MILL  
Supt: Fausto Voltolini

**HUMPS OF GOLD MINE**  
Wallace  
Owners: Lee Earhart & Richard May  
MINES, 22 mi E of Oro Grande,  
underground, Au  
Idle

**HYPOTHEEK MNG & MLG CO.**  
510 Bank St., Wallace  
Pres: R. L. Brainard  
Mgr: R. H. Kingsbury  
HYPOTHEEK MINES, Kingston, Au,  
Ag, Pb, under devel.  
Supt: J. T. Kingsbury  
KING OF PINE CR MINE, W. of Pine Cr.

**IDAHO BERYLLIUM & MICA CORP.**  
Box 176, Deary  
Pres: Leo J. Mason  
VP: Glen L. Evans  
Sec: John A. Carver, Jr.  
Gen Mgr: Arley Haener  
MUSCOVITE MINE, Avon dist,  
10 mi N of Deary, underground  
& surface, mica, beryl  
Mine Engr: Albert K. Smith, Jr.

**IDAHO-CANADIAN DREDGING COMPANY**  
Box 2127, Boise  
Pres & Gen Mgr: H. B. Murphy  
VP: Miles M. Young  
Sec-Treas: George E. Murphy  
Gen Supt: Willard J. Bennett  
MINE, Box 116, Cascade, 75 mi  
N of Boise, placer, monazite,  
ilmenite, garnet & zircon  
Prod: 50 tons

**IDAHO CONSOL MINES**  
4109 Arcade Bldg., Seattle 1, Wash.  
Pres & Elec Engr: Edm. G. Wilson  
VP: D. A. Mastro  
Gen Supt: Charles Kapp  
Sec: H. D. Merrick  
Geol: Allen Merritt  
TWIN PEAKS MINE, 18 mi S of Salmon  
on U. S. 93, underground, Pb, Cu,  
Ag, Au, Co  
Mine Engr: G. Chock  
125-TON FLOT MILL  
Mill Supt: D. Nichols

**IDAHO-CONTINENTAL MINE**  
Bonners Ferry  
MINE, Port Hill dist,  
Boundary Co., Ag, Cu,  
Pb, Zn

**IDAHO CUSTER MINES, INC.**  
Box 469, Wallace  
Pres: C. Paul Grosenick  
VP: J. J. McGreevy  
Sec: H. F. Magnuson  
IDAHO CUSTER MINE, 16 mi  
S of Clayton, Pb  
200-TON MILL

**IDAHO GARNET ABRASIVE CO.**  
Box 1452, Spokane, Wash.  
MINE, Fernwood, 1,000-yard drag-  
line dredge, placer & garnet sand

**IDAHO GOLDFIELDS, INC.**  
1114 W. Indiana, Spokane, Wash.  
Pres & Gen Mgr: W. M. Fredericks  
Sec-Treas: James Milne  
DONAHOE LEASE, near Kellogg, Pb  
Foreman: E. A. Oerling  
BLACK ROCK MINE, Wet Gulch,  
surface, Au, idle

**IDAHO LAKEVIEW MINES CO.**  
302 Columbia Bldg., Spokane, Wash.  
Pres: J. L. Drommiller  
Sec-Treas: L. R. Gordon  
KEEP COOL MINE, near Lakeview,  
Ag, Pb, Zn  
100-TON FLOT MILL  
Mine & Mill Supt: E. A. McDaniel

**IDAHO MINING COMPANY**  
Box 898, Kellogg  
Pres: Ben Zimmermann

VP: L. E. Beeson  
Sec & Gen Mgr: Bruce E. Allgaier  
Acting Gen Supt: Otto E. Haaland  
Geol: Leonard J. Garrard  
Purch. Agt: Robert A. Whitman  
WASHINGTON-IDAHO MINE, west  
fork, Moon Creek, 6 mi NE of Kel-  
logg, underground, Pb, Zn, Ag, Cu  
Prod: 100 tons  
Under devel.  
Mine Supt: Otto E. Haaland  
Mine Engr: Leonard J. Garrard

**IDAHO STAR MINING CO.**  
E. 1302 Neward Ave., Spokane, Wash.  
Pres: R. T. Lawrence  
MINE, St. Joe dist, near Avery,  
Au, Cu, Co  
Idle

**IDAHO-WARREN DREDG CO.**  
Centerville  
Pres & Gen Mgr: A. F. Baumhoff  
Sec-Treas: G. T. Eymann  
ELK CITY & YANKEE FORK MINES  
4,000-yd bucket dredge, Au  
Dredgemaster: J. R. Johnson  
Idle

**INDEPENDENCE PLACER MINING COMPANY**  
Gyde-Taylor Bldg., Wallace  
Pres: Walter H. Hanson  
Sec: G. H. Richardson  
MINE, 50 mi S of Superior,  
Mont. Au

**INDEPENDENCE & EMPIRE MINES**  
Boise  
Operator: Oscar Pearson  
MINES, Bear Creek & Feather-  
ville dists, Elmore Co., Au, Ag

**INTERMOUNTAIN MNG CO.**  
Wallace  
LATEST OUT MINE, Texas dist  
Lemhi Co., Ag, Pb, Zn  
VIOLA DUMP, Nicholia dist,  
Lemhi Co., Ag, Pb, Th

**INTERNATIONAL LEAD AND COPPER COMPANY**  
Gilmore  
Operator: Thomas I. Green  
SILVER CONS MIN., Spring Mtn dist,  
Lemhi Co., Ag, Pb, Cu, Zn

**IRON MT MNG CO., INC.**  
Box 523, Weiser  
Pres & Gen Mgr: Frank Mortimer  
Sec: Claudia J. Merritt  
MORTIMER GROUP, 30 mi N of  
Weiser, underground, Pb, Ag, Cu,  
Zn, Au  
Under devel.

**J. S. PLACER**  
Garden Valley  
Operator: George Zezi  
MINE, Grimes Pass dist,  
Boise Co., Au, Ag

**JESSIE MINE**  
Eagle  
Operator: L. M. Sloper  
MINE, Summit Flat dist, Au  
35-TON MILL

**JACKSON, HELEN**  
North Hollywood, Calif.  
LAST CHANCE GROUP, Custer Co.,  
Hayhorse dist (Leased to Harold D.  
Ive, Box 442, Mackay)

**JOHNSON MINING COMPANY**  
1220 N. 11th St., Boise  
Owner: S. C. Johnson  
MIDDLEMAN CLAIMS, Pearl, 22  
mi N of Boise, underground,  
Au, Ag, Pb, Zn  
Under devel.  
Mine Supt: Jack Taylor  
25-TON FLOT MILL  
Mill Supt: Mr. Ubank

**KIMBERLY GOLD MINES, INC.**  
Riggins  
Gen Mgr: F. P. Webber  
Met: V. W. Bailey  
Mech Engr: Lester Turner  
KIMBERLY MINE, 50 mi E of  
Riggins, underground, Au, Ag,  
scheelite, Pb, Cu  
50-TON FLOT MILL  
(See Washington)

**KING OF PINE CR MNG CO.**  
612 Chronicle Bldg., Spokane, Wash.  
Pres & Gen Mgr: C. C. Anderson  
VP: E. H. Carlson  
Sec: L. Howe  
MINE, Wallace, idle

**KLEESATTE MINE**  
Elk City  
Operator: Clair Johnson  
MINE, Ten Mile dist, Idaho  
Co., Au, Ag



**KWAJALEIN MINE**

Challus  
Operator: L V Carothers  
MINE, Yankee Fork dist,  
Custer Cox

**L & W MINING COMPANY**

North Salt Lake City, Utah  
PAYMASTER MINE, Warm Springs  
dist, Blaine Co., Ag, Pb, Zn  
Idle

**LAKEVIEW LEASE**

647 Peyton Bldg, Spokane, Wash  
Owner: R B Austin  
WEBER MINE, 21 mi E of Athol,  
surface, Ag, Au  
Prod: 3,000 tons per year  
Mine Foreman: Otto Meyer

**LARSON, R W**

South Fork Lodge, Golden  
SOUTH FORK MINE, 11 mi E of Gold-  
en, underground, Au, Ag  
Under devel

**LAWRENCE CONS MINING CO**

Clark Fork  
Pres: C I White  
Sec: C I White, Jr  
LAWRENCE GROUP, Clark Fork,  
Pb, Ag, Sn  
30-TON CONC  
Idle

**LEAD BLOSSOM MINING AND  
MILLING COMPANY**

422 High St, Wallace  
Pres: Jerry Graber  
VP: Margaret Denny  
LEAD BLOSSOM MINE, Wardner,  
underground, Ag, Pb  
Idle

**LEAD ZONE MINE**

Box 1802, Boise  
MINE near Council, Ag, Pb, Zn

**LEONARD BROTHERS**

Silver City via Murphy  
Gen Mgr: F L Leonard  
PAUPER GROUP, 2 mi SE of  
Silver City, underground, Au, Ag, Cu  
2-TON GRAY-AMAL MILL  
Idle

**LEONARD, MRS R H**

Silver City via Murphy  
DAVIDSON GROUP, 2 mi E  
of Silver City, underground,  
Au, Ag, idle  
EMPIRE GROUP, 2 1/2 mi E  
of Silver City, underground,  
Au, Ag, idle

**LEONE MARIE MINE**

Ovid  
Operators: Gambling & Skinner  
MINE, Bear Lake dist, Bear Lake Co.,  
Ag, Pb

**LEWIS MINE**

Homedale  
Operator: John A Turner  
MINE, Carson dist, Au  
150-TON AMAL MILL

**LIVINGSTON MINES, INC**

320 W 7th St, Seattle, Wash  
Pres: Harry C Petrie  
Gen Mgr: Henry Mears  
LIVINGSTON MINE, Bayhorse dist,  
16 mi S of Clayton, Pb  
200-TON MILL

**LONE PINE MINING & LSG CO**

Banners Ferry  
LONE PINE MINE, Ten Mile  
dist, Idaho Co., Au, Ag, Cu, Pb  
Idle

**LOOKOUT MT MNG & MLG CO**

Box 638, Kellogg  
Pres: William Penny  
Gen Mgr: L S Harrison  
LOOKOUT MT MINE, Pine Creek,  
underground, Pb, Zn

**LUCKY BOY, ANNA, PEAKE  
MINES**

Sunbeam  
Operator: Charles E Heisen  
MINES, Yankee Fork dist, Custer  
Co., Au, Ag  
(See Yankee Mines, Inc)

**LUCKY FIVE MINING CO**

Box 182, Spokane, Wash  
Sec-Treas: A M Lagdon  
MINE, 4 mi N of Oro Grande,  
placer, Au

**LUCKY FRIDAY SILVER-  
LEAD MINES CO**

Box 1131, Wallace  
Pres & Gen Mgr: John Sekulic  
VP: Chas E Horning

**Sec: W J Emacio**

LUCKY FRIDAY MINE, Mullan,  
Hunter dist, Pb, Ag, Cu, Zn  
Prod: 100 tons  
Mine Supt: David Elder

**LUCKY SIX MINING CO**

Julietta  
Pres: Donald Cantril  
Sec: John Longteig  
Gen Supt: Alec McIntosh  
Ch Engr: Harold Freeman  
Treas: Frank Cantril  
455 & 41 MINES, Clarkia &  
Southwick, underground & placer,  
Ti, Fe, Au  
Under devel

**MACKAY EXPLOR CO**

4212 Franklin Rd, Boise  
Pres: W P Barton  
VP: D E Bell  
EMPIRE MINE, 3 mi W of Mackay,  
Cu, Au, Ag  
Idle

**MAMMOTH MINE**

Grangeville  
Opr: George Grebe  
MINE, Dixie dist, Idaho Co., Au  
24-TON AMAL MILL  
Idle

**MARENHOLTZ, MRS C V**

Rt 8, S 39th St, Boise  
LAST CHANCE & ROCKY BAR  
PLACERS, Centerville  
Idle

**MCCOY MINE**

Hailey  
Opr: Charles & W A Shepherd  
MINE, Mineral Hill & Camas dist,  
Blaine Co., Au, Ag, Cu, Pb  
Idle

**MCGREGOR MINING CO**

Box 45, Cataldo  
Pres: M C Jacobson  
Sec: Mrs Grace Jacobson  
MCGREGOR, PACIFIC MINES  
Cataldo Gulch, Au, Ag, Cu, Pb, Fe

**MERGER MINES CORP**

Box 484, Coeur d'Alene  
Pres: C H Hunter  
VP: W L Erwin  
Sec-Treas: J B Nelson  
MINE, Evolution #2, Shoshone Co  
Foreman: Glen E Good  
Under devel

**METALINE & PINE CREEK  
CONSOL MNG CO**

Scott Bldg, Wallace  
Pres: Stanley Easton  
VP: J B Haffner  
Sec: H F Magnuson  
(Controlling stock interest owned  
by Bunker Hill & Sullivan)

**METROPOLITAN MINES CORP**

Box 487, Wallace  
Pres & Gen Mgr: R H Kingsbury  
Sec-Treas: A J Teske  
METROPOLITAN GROUP, Evolution  
dist, Shoshone Co., undgrnd, Ag, Cu, Pb  
Idle

**MEYER, WILLIAM J**

Box 121, Grangeville  
LIBERTY BELL MINE, Elk City  
dist, Au, Ag

**MONARCH GROUP**

Murray  
Owner: W H Hanson  
MINE, Ag, Pb  
Under devel

**MORMON CITY MINE**

Pearl  
Opr: O A Paul  
MINE, West View dist, Gem Co.,  
Au, Ag, Cu, Pb, Zn

**MOUNTAIN BELL MINE**

Howe  
Opr: Daniel G Romney  
MINE, Spring Mountain dist,  
Lemhi Co., Cu, Pb  
Idle

**MOUNTAIN KING MINE**

Box 32, Hailey  
Mgr: Fred & Earl Shirts  
MINE, Seafoam dist, Custer Co.,  
Au, Ag, Cu, Pb, Zn

**MULLAN-DOYLE LEASE**

Wallace  
HULTNER TAILINGS, Hunter dist,  
Shoshone Co., Ag, Pb, Zn

**NABOB SILVER LEAD CO**

Box 890, Kellogg  
Pres: T R Jones  
Gen Mgr: C C Dunkle  
MINE, Wallace, Pb, Zn  
300-TON FLOT MILL  
Assay: C V Barto

**NATIONAL MINES, INC**

Box 217, Malad  
Pres: W L Baker  
VP & Gen Mgr: C A Dye  
Sec: Blythe G Clemons  
SENTINEL MINE, 20 mi NE of  
Hwy, Zn, Pb, Ag  
Idle

**NATIONAL METALS**

Hailey  
Gen Mgr: C A Dye  
HIDDEN TREASURE MINE, on  
Little Smokey, Ag, Pb, Zn

**NEW HILARITY MNG CO**

Box 27, Spokane, Wash  
Pres: R W Neyman  
VP: W Brainard  
Sec-Treas: E K Barnes  
Asst Sec-Treas: E M Borjesson  
MINE, Box 943, Wallace  
Foreman: Eugene C Iverson  
Idle

**NIXON, WM A ESTATE**

Rocky Bar  
Opr: Oscar Pearson  
EMPIRE GROUPS, Elmore Co

**NORTH FORK DEVEL CO**

Wallace  
Sec: W H Hanson  
MINE, Shoshone Co., Ag, Pb  
Idle

**OHIO MINE**

Hailey  
Opr: N V Linderman  
MINE, Mineral Hill & Camas dist,  
Blaine Co., Ag, Pb

**OLD GLORY, FRACTION  
MINES**

Mackay  
Opr: Taylor & Parks  
MINE, Alta dist, Custer Co.,  
Ag, Cu, Pb, Zn

**OVERLAND TRUST**

Hailey  
Pres & Gen Mgr: Hail Parke  
Sec: Clara Kittmiller  
OVERLAND & EDRES MINE,  
Bellevue, undgrnd, Au, Ag, Pb, Zn  
Engr: A L Anderson  
Assay: A Hail  
Idle

**PACKER GROUP PLACER**

Box 157, Idaho City  
Owner: L L Packer  
MINE, 1 1/2 mi N of Idaho City,  
surface & placer, Au  
Prod: 500 yds  
Under devel

**PENMAN MINE CLAIMS**

c/o Ross R Brattain, 7800 SE  
22nd Way, Mercer Island, Wash  
CLAIMS, Orogrande, 4 mi SE of  
Orogrande on Dixie Road, undgrnd, Au  
Idle

**PINE CREEK PLACER CO**

Hereford, Ore  
Pres: R M Davidson  
PLACER MINE, Au  
Gen Mgr: L A Holst  
Engr: Fred Bower  
Idle

**P K LEASING CO**

Wallace  
SEATTLE MINE, Yreka dist,  
Shoshone Co., Ag, Cu, Pb, Zn  
Idle

**POLARIS MINING CO**

Box 320, Wallace  
Pres: L J Randall  
VP: J L McCarthy  
Sec: Eloy Enbom  
Gen Mgr: R W Neyman  
Treas: J R Matthews  
Geol: R E Sorenson  
Purch Agr: R G Hall  
SILVER SUMMIT MINE, 7 mi W  
of Wallace, underground, Ag, Cu  
Mine Supt: George Grismer  
Mine Foreman: A P MacDonald  
FLOT MILL  
Mill Supt: N J Sather  
Mill Foreman: J G Dalgleish

**PREMIER STAR MNG CO**

Box 132, Osburn  
LUCRETIA CLAIMS, Hunter dist,  
Shoshone Co  
Idle

**PROFILE TAMARACK MINES**

309 SW 4th Ave, Portland, Ore  
Pres: C E Thompson  
Sec: E P Slovorp  
CENTRAL GALENA GROUP, Yellow  
Pine, underground, Ag, Pb, Zn  
Gen Mgr: H T Abstein

**QUIGLEY MINE SYNDICATE**

1129 10th Ave, Seattle 2, Wash  
Pres: W J Logan  
Geol: James M Donald  
QUIGLEY MINE, 1 1/2 mi E  
of Hailey, underground, Pb, Ag, Cu  
Under devel

**RAINBOW MINE & MLG CO,  
LTD**

Box 889, Wallace  
Pres: H C Mearns  
Sec-Treas: W A Hickey  
RAINBOW #1 GROUP, Evolution  
dist, Cu, Ag, Pb, Zn  
Under devel

**RAMSHORN MINES CO**

333 Felt Bldg, Spokane Co, Wash  
Pres: W W Murrell  
Sec: Leo Eager  
RAMSHORN & BELLINLEY GROUP  
Bayhorse dist, Clatsop, Ag, Pb  
Idle

**RARE EARTHS, INC**

1535 Lupton Ave, San Jose, Calif  
Mgr: W W Prather  
Treas: Bealor Waggoner, Calif  
WARREN MEADOWS MINE, Warner  
dist, bucket line dredge

**RARE METAL MINES, INC**

E 601 Crown Ave, Spokane, Wash  
Pres: Arthur L Hopper  
MINE, Bonner Co., Au, Ag  
Idle

**RED BIRD MINE**

Clayton  
Partners: Bachman, Brecken &  
Norden  
Gen Mgr: J A Norden  
MINE, 8 mi NW of Clayton, under-  
ground, Pb, Ag  
Prod: 300-400 tons per month

**RICHARDSON PLACERS**

Box 756, Salmon  
Agr: Mrs J H Shoup  
Mgr: W H Shoup  
PLACERS, 32 mi W of Salmon,  
dragline-hydraulic-dredge, Au, Ag

**RIPPETO MINE**

Hailey  
Opr: Rod McKay  
MINE, Little Wood Riv dist,  
Blaine Co., Ag, Cu, Pb, Zn

**ROCK, TOM**

Silver City  
MINE, underground, Au, Ag  
Under devel

**ROCK CREEK GROUP**

Box 27, Idaho City  
Partners: John & Glenn Larson  
MINE, Au, Ag  
7-TON GRAY MILL  
Idle

**ROMNEY, DANIEL G**

Howe  
MINES, Lemhi Co., Spring Mt dist,  
Ag, Cu, Pb  
BADGER KING MINE, Butte Co,  
Hamilton dist, Ag, Pb, idle

**SCHULTZ, HARRY A**

Idaho City Stage, Boise  
RAINBOW GROUP PLACER, Au

**SHAMROCK #1 MINE**

Golden  
Opr: H W White  
MINE, Ten Mile dist, Idaho Co

**SHUCK'S PLACER**

Elk City  
PLACER, Idaho Co., Au, Ag

**SIDNEY MINING CO**

102 Sidney Bldg, Kellogg  
Pres: W T Simons  
Gen Mgr: M C Brown  
Sec-Treas: F E Marler, Jr  
Purch Agr: A G Pippio  
SIDNEY MINE, 13 mi S of Kellogg,  
underground, Zn, Ag, Pb  
Prod: 200 tons  
Foreman: Ed Coe  
Engr: C H Reynolds  
Mech Engr: Zane Smith  
300-TON FLOT MILL  
Supt: C A McKinley

**SIGNAL MINING CO**

410 Main St, Kellogg  
Pres: H G Alway  
VP: John B Penney  
Sec: Wendell R Braunard  
Gen Supt: Eugene C Iverson  
HILARITY GROUP, 7 mi W of Kellogg,  
underground, Zn, Pb, Ag  
Under devel  
Mine Supt: Eugene C Iverson

**SILVER BANNER MNG CO**

Tal. Bldg. Wallace  
Pres: W Stewart  
VP & Gen Mgr: S K Garrett  
Sec: J Hull  
Treas: C W Six  
SILVER BANNER MINE, 8 mi E of Wallace  
Under devel

**SILVER BOWL, INC**

Box 38, Kellogg  
Gen Mgr: R W Neyman  
Sec: Wayne A Brainard  
SENATOR STEWART MINE, Deadwood  
Gal. Ag, Pb, Zn  
FLOT MILL  
Idle

**SILVER CHIEFTAIN CO**

413 Chronicle Bldg.  
Spokane 8, Wash  
Pres: Gen Mgr: Elmer E Johnston  
VP: C C Anderson  
Sec: W T Anderson  
Purch Agt: R W Weideman  
SILVER DOLLAR MINE at Osborn,  
underground, Ag, Pb, Cu  
Mine Foreman: Horace Smith

**SILVER DOLLAR MNG CO**

Spokane, Wash  
ST GERMAINE, PURIM & LINCOLN  
MINES, Evolution dist, Shoshone Co,  
Au, Ag, Cu, Pb, Zn

**SILVER HILLS MNG CO**

1258 Crandall Ave.  
Salt Lake City 6, Utah  
Pres: A A Firmage  
Sec-Treas: L M Francis  
BUSY BEE & JOVEON GROUPS  
MINES, 10 mi NE of Strevell,  
underground

**SILVER-LEAD BELL MINE**

Moore  
Opr: Donald D Hanni  
MINE, Alder Cr dist, Custer Co,  
Ag, Pb, Zn

**SILVER STILL MNG CO**

Weiser  
Pres: Lee Thorson  
VP: Kenneth Steck  
Sec: E W Horner  
SILVER STILL MINE, Mineral,  
30 mi N of Weiser, Ag, Cu, Pb, Zn  
Idle

**SILVER STAR MINES**

Box 456, Wallace  
Pres: M D Anderson  
Sec: A J Teske  
Treas: Roy H Kingsbury  
MINE, S of Dayrock, Shoshone Co,  
Pb, Ag

**SILVER STAR-QUEENS**

MINES, INC  
Box 158, Hailey  
Pres & Gen Mgr: N T Davis  
VP: R E Kreuger  
Sec-Treas: F L Johnson  
OLD MINNIE MOORE & QUEEN OF  
THE HILLS MINES, 1 1/4 mi W of  
Bellevue, underground, Pb, Ag, Zn  
Idle

**SILVER SYNDICATE, INC**

Box 469, Wallace  
Pres & Gen Mgr: W M Yeaman  
VP: Ray Morrison  
Sec-Treas: A H Featherstone  
SILVER SYNDICATE MINE, 10 mi  
from Wallace, underground, Au, Cu, Pb,  
Zn, Ag  
(Operated by Sunshine Mng Co,  
which see)

**J R SIMPLOT CO,**

FLUORSPAR MINE INC  
c/o Keith Madill, Challis  
Pres: J R Simplot  
VP: Grant Kilbourne  
Sec-Treas: John Dahl  
Gen Mgr: Keith Madill  
Purch Agt: Austin Richins  
FLUORSPAR MINE, Challis,  
underground  
(See Nevada)

**SIMPLOT FERTILIZER CO**

Box 912, Pocatello  
Pres: J R Simplot  
VP: Grant Kilbourne  
Gen Mgr: E W Hansen  
Sec: Mrs Helen Schwake  
Purch Agt: Austin Richins  
GAY MINE, 22 mi from Fort Hall,  
surface, phosphate  
Mgr: John Kube  
Mine Supt: Charles W Sweetwood  
Engr: Maurice Hansen  
Gen: Max Hales  
500-TON SUPERPHOSPHATE PL.  
Producing P<sub>2</sub>O<sub>5</sub>  
Prod: 300,000 tons per year  
W Supt: Paul Stocks

**SIMMONS, D W**

502 Ash St, Boise  
QUEEN MINE, 7 mi W of Atlanta,  
placer, Au

**SMOTHERS, A P**

Shoup  
ELKHORN BAR PLACER, 52 mi W  
of Shoup, dragline placer, Au,  
rare earths, idle  
BROKEN HALTER MINE, 30 mi W  
of Shoup, undergrd & surface, CaF<sub>2</sub>,  
under devel

**SNOOSE MINING CO**

Box 67, Hailey  
Pres & Gen Mgr: A M Jensen  
VP: W F Smith  
Sec-Treas: R S Bacon  
SNOOSE MINE, 2 1/2 mi SE of  
Hailey, underground, Zn, Pb, Ag, Au

**SOUTH BUTTE MINE**

Mackay  
Opr: Edward Herzinger  
MINE, Bayhorse dist, Custer  
Co, Ag, Cu, Pb, Zn

**SOUTH FORK PLACERS**

Golden  
MINE, Ten Mile dist, Idaho Co,  
Au, Ag

**SOUTH MOUNTAIN MNG CO**

Jordon Valley, Oregon  
GOLCONDA MINE, So Mt Mng dist,  
Owyhee Co, Ag, Pb, Zn

**SPOKANE-IDAHO MNG CO**

611 Peyton Bldg, Spokane 8, Wash  
Pres: Frank N Marr  
VP: S H Clinedinst  
Mgr: Brower Dellinger  
Sec: C D Randall  
Treas: Charles E Marr, Jr  
Ch Engr: John H Wilson, Jr  
CONSTITUTION MINE, Box 930,  
Kellogg, 8 1/2 mi SE of Pinehurst,  
underground, Zn, Pb  
Prod: 180 tons  
Mine Supt: C F Redding  
180-TON FLOT MILL  
Mill Supt: Norman Arneson  
DOUGLAS MINE (See Douglas Mng Co)

**SQUARE PEAK MINE**

McCall  
Partners: F B Frasier,  
L L Frasier, R J Frasier &  
A R Roger  
MINE, 25 mi N of McCall, Au,  
Pb, Zn, Ag, W, Cu  
Supt & Mgr: G W Frasier, Weiser

**STITES & CO**

Box 766, McCall  
Gen Mgr: B M Stites  
Dir: Clifford E Enger, Austin,  
Minn  
LUCILE PLACERS, dragline-dredge,  
Au, Ag  
Engr: Walter Hovey Hill

**STOKES & SHOUP, KYANITE**

EXPLORE  
Box 756, Salmon  
Gen Mgr: G E Shoup  
Asst Mgr: Earl Stokes  
SPARK PLUG LODÉS, 5 mi W of  
Salmon, surface, kyanite  
Under devel, producing

**STRUNK, ETHEL MAY**

Custer Co, Alder Cr dist  
HORSESHOE MINE  
Lessees: D A Anderson, A G  
Anderson & C B Lindburg

**SUCCESS MINING CO**

Wallace  
Pres: Henry L Day  
SUCCESS MINE, Wallace,  
Zn, Pb, Ag, Sb

**SULLIVAN MNG CO**

Box 320, Wallace  
Pres: L J Randall  
VP: S A Easton  
Sec: Ira A Robson  
Treas: J R Matthews  
Purch Agt: R G Hull  
STAR MINE, Burke, under-  
ground, Zn, Pb, Ag  
Prod: 950 tons  
Mine Supt: R W Neyman  
Mine Foreman: Lee Messerly  
Mine Engr: R E Sorenson  
550-TON FLOT MILL, Burke  
Mill Supt: N J Sather  
Mill Foreman: Robert Miller  
ELEC SMELTER, Silver King  
Supt: W G Woolf  
Mgr: J B Haffner  
Purch Agt: Henry Biotti

**SUNSET LEASE**

Day Bldg, Wallace  
Gen Supt: R Farmin  
SUNSET MINE, 10 mi N of  
Wallace, undergrd, Zn, Pb

**SUNSET MINERALS, INC**

Box 869, Kellogg  
Pres: O Bardahl  
Gen Mgr: R E Lomas  
Sec-Treas: David Harvey  
LIBERAL KING MINE, 11 mi W  
of Kellogg, undergrd, Zn, Pb, Ag, Au  
Prod: 60 tons  
125-TON FLOT MILL  
Mill Supt: W E Hall

**SUNSHINE CONS, INC**

102 Sidney Bldg, Kellogg  
Pres: W M Yeaman  
VP: W T Simons  
Sec: F E Marler, Jr  
Gen Mgr: N M Smith  
SUNSHINE CONS MINE, 6 mi E  
of Kellogg, underground, Ag  
(Under devel by Sunshine Mng Co)

**SUNSHINE MINING CO**

Box 1080, Kellogg  
Pres: Robert M Hardy  
Gen Mgr: Ross D Leisk  
Gen Supt: John Edgar  
Dir: Joshua Green & C M Hull  
Asst to Gen Mgr: Robert M  
Hardy, Jr  
Purch Agt: N J Osborne  
SUNSHINE MINE, 5 mi E of  
Kellogg, Evolution dist,  
underground, Ag, Pb, Zn  
Gen Supt: John Edgar  
Ch Engr: R L Anderson  
Geol: R F Robinson  
Foreman: Charles Angle  
1400-TON FLOT MILL  
Supt: Wayne D Gould  
Assay: M F Scott  
SILVER SYNDICATE MINE  
(See Silver Syn Mng Co)  
SUNSHINE CONS MINE  
(See Sunshine Cons)

**UNSHINE PLACER**

c/o Sappa Grocery, Lewiston  
Mgr: C R Williams  
PLACER, Idaho Co

**SUN VALLEY LEAD-**

SILVER MINES, INC  
Box 57, Ketchum  
Pres & Gen Mgr: R L Roundy  
VP: L O Lindberg  
Sec & Purch Agt: J R Thornton  
BLUE KITTEN MINE, 8 mi W of  
Ketchum, undergrd, Pb, Ag, Zn, Au,  
under devel  
Prod: 20 tons  
Mine Foreman: F W Lesse  
Mine Engr: C C Livingston  
75-TON FLOT MILL, 6 mi W of  
Ketchum  
Mill Foreman: George W Stokes

**TALACHE MINES, INC**

211 Yates Bldg, Boise  
Pres: A H Burroughs, Jr  
VP: B K Burroughs  
BOISE-ROCHESTER & MONARCH  
MINES, Atlanta, undergrd, Au, Ag  
Gen Supt: P T Peterson  
Elec: H A Hartman  
350-TON FLOT MILL  
Supt: J N Groomer  
LOVE PINE MINE, Idaho dist,  
Ag, Pb, Zn  
(Leased to Love Pine Mng Co,  
which see)

**TAYLOR, IVAN T**

Box 416, Mackay  
SKYVIEW #1, 2, Alder Cr dist

**TENDRY MINING CO**

Blackfoot  
COPPER QUEEN MINE,  
Mackinaw dist, Idaho Co, Au, Ag

**THATCHER CREEK MNG CO**

Ketchum  
THATCHER CREEK MINE, Mineral  
Hill & Camas dist, Blaine Co, Ag,  
Cu, Pb, Zn  
Idle

**THORNTON MINING CO**

Garden Valley  
Pres: Charles Thornton  
COLUMBITE MINE, 16 mi E of  
Garden Valley, surface, columbite,  
mica, samarskite, monazite  
Prod: 50 tons  
50-TON GRAY MILL

**TRIUMPH MINING CO**

Triumph  
Pres: J W Sweet  
VP: E H Snyder  
Sec: John W Hamilton  
Gen Mgr: A H Shoemaker  
Elec Engr: Don Downard  
Mech Engr: C O Ray  
Purch Agt: Herbert Shear  
TRIUMPH MINE, Triumph, 15  
mi NE of Hailey, underground,  
Pb, Ag, Zn, Au, Cu  
Prod: 300 tons

**300-TON FLOT MILL**

Mill Supt: M A Jorgensen  
Asst Mill Supt: Marvin Seldin  
Assayer: A L Hall

**TUCKER, MRS BESSIE F**

4206 Leimart Bldg,  
Los Angeles, Calif  
RIPPETO MINE, Blaine Co,  
Ag, Pb, Zn  
(Leased to Rod McKay, Muldoon)

**TURTLE MINE**

Challis  
Owners: Leo D Ivie &  
Elray N Kimball  
MINE, Custer Co, Bayhorse  
dist, underground, Ag, Pb  
Under devel, producing  
(Leased to La Floreita Mng Co,  
314 E 6th St, Salt Lake City)

**TYEE MINING CO**

Spokane St Dock, Seattle, Wash  
RED RIVER & SUNRISE MINES,  
Elk City, Au, Ag, dragline-dredge  
Gen Mgr: C J Sebastian  
Supt: S K Coates

**UNITED MERCURY MINES C**

246 Sunna Bldg, Boise  
Pres & Gen Mgr: J J Oberholting  
MINE, Yellow Pine, Au, Ag, Sb, Hg  
120-TON FURN

**UNITED MINERALS CORP**

Ketchum  
Gen Mgr: S W Snyder, Jr  
HOMESTAKE-LONG GRADE MINE,  
8 mi NE of Ketchum, underground,  
Zn, Pb, Ag, Au, Cu  
Under devel  
Mine Supt: Lowell Thompson  
(See Ariz. Nevada & Utah)

**UTAH-IDAHO MNG & MLG**

Paris  
Pres & Gen Mgr: P C O'Malley  
MINE, near Paris, Pb, Cu, Ag, Au  
Under devel

**VERDE MAY MNG CO, LTD**

Wallace  
Pres & Gen Mgr: G W Nordquist  
VP & Sec: W H Hanson  
MINE, Gem, Pb, Ag  
Under devel

**VINDICATOR SILVER-**

LEAD MNG CO  
Box 469, Wallace  
Pres: H J Rossi  
VP: H W Ingalls  
Sec-Treas: H F Magnuson  
VINDICATOR MINE, 2 mi E of  
Mullan  
Engr: Arthur Lakes

**V J PLACER MINE**

Warren  
Opr: Robert Newcomb  
MINE, Warren dist, Idaho Co,  
Au, Ag

**VULCAN SILVER-LEAD**

CORP  
Wallace  
VULCAN MINE, 2 mi W of  
Wallace, undergrd, Pb, Ag  
Under devel  
Prod: 200 tons  
(Leased to American Smelting &  
Refining Co)

**WARREN DREDGING CORP**

Boise  
Sec-Treas: G T Eymann  
BULLOCK & GOLDEN ROD  
GROUPS, Idaho Co, bucket  
dredge, Au, Ag  
YANKEE FORK MINE, Yankee  
Fork dist, Custer Co, Au, Ag

**WASHINGTON MINING CO**

Pres: John C Glabe  
MINE, Burke, Zn, Ag, Pb  
Gen Mgr: Mark Evans  
Idle

**WEST MAMMOTH TAILINGS**

Wallace  
Opr: James Doyle  
MINE, Hunter dist, Shoshone Co,  
Ag, Cu, Pb, Zn  
Idle

**WEST STAR MINE**

Coeur d'Alene  
Opr: M N Seeley  
MINE, Leland dist, Shoshone  
Co, Ag, Pb, Zn

**WESTERN METAL**

PROD CO  
Wardner  
Pres: W R Brainard  
Mgr: R L Brainard  
MINE, near Murray, Eagle  
dist, Ag, Pb  
Idle

# WHITEDELF MNG & DEVEL CO

Clark Fork  
Pres & Gen Supt: Compton I White, Jr  
VP: W W von Canon  
Sec & Gen Mgr: Compton I White, Sr  
WHITEDELF MINE, 2 mi N of Clark Fork, undergrd, Ag, Pb, Zn  
Under devel  
30-TON FLOT MILL

# WHITE KNOB MNG CO

Newhouse Bldg.  
Salt Lake City, Utah  
Pres: W C Page  
HOMESTAKE COPPER QUEEN MINES, Alder Cr., Mackay, Pb, Zn, Ag

# WICKSTROM, GEORGE

Raymond, Wash  
GOLDEN RULE MINE, 40 mi N of McCall, placer, Au, Ag  
Prod: 20,000 yds

# WILBERT MINING CO

314 Kearns Bldg.  
Salt Lake City, Utah  
Pres: F B Cook  
VP: R J Hogan  
Sec: O C Larson  
DAISY BLACK GROUP, Dome dist, Howe, Pb, Ag  
75-TON CONC  
Idle

# WILLIAMS, HARRY M

Box 761, Caldwell  
VALLEY VIEW MINE, Texas dist, Lemhi Co., Ag, Pb

# WONDER MINING CO

Golden  
Gen Mgr: Ernest Butler  
WONDER MINE, 2 mi SE of Golden, underground, Au, Ag  
15-TON GRAY MILL  
Idle

# WONDER LORE CLAIMS, INC

Box 766, Salmon  
Pres & Gen Mgr: G Elmo Shoup  
VP: R M Shoup  
Sec: Fred H Snook  
Asst Gen Mgr: William R Shoup  
Gen Supt: William Manger  
WONDER LORE (IDARO PRIDE MINE, 3 mi E of Salmon on Highway 28, undergrd, Cu, Ag, Au  
Idle

# YAKIMA SHOSHONE MNG CO

121 S 21st Ave, Yakima, Wash  
Pres: Edward A Bannister  
VP: Charles E Horning  
Sec: H T Buckman  
NELLIE MINE, Osburn, underground  
Under devel (in coop with Polaris)

# TANKEE MINES, INC

3401 Nat Perce, Boise  
Pres & Gen Mgr: C E Reasnyder  
VP: Howell J Laydon  
Sec: Troy Becker  
COSTER & MULLEN GROUPS, Sullivan, undergrd, Au, Ag  
30-TON FLOT MILL  
(Leased to Chas R Heiser)

# ZASSETTI BROS

Waijale  
BIG CREEK, OSBURN & DEBLOK TAILINGS  
Evolution dist, Shoshone Co., Ag, Cu, Pb, Zn  
INTERSTATE-CALLAHAN MINE, Beaver dist, Latah Co., Ag, Pb, Zn

# MONTANA

# A I CON MNG & ENG CO

Sheridan  
MINE, Peterson Gulch, Ag, Cu  
Engr: M R Massey

# ACME CO, THE

Chicago, Illinois  
GOLD COIN MINE, Georgetown dist, Deer Lodge Co., Au, Ag

# ALICE MINE

Marysville  
Opr: Clarence Woody  
MINE, Alpe dist, Granite Co., Ag, Pb, Zn  
Idle

# ALLEN, HARRY

Box 282, Townsend  
SPAR MINE, Broadwater Co., Ag

# ALLIED METALS, INC

419 Sprague Ave, Spokane, Wash  
Pres: Wm Tanke  
VP: Frank Mangia  
Gen Mgr: J P Arnold  
SYLVIA MINE, Wisdom, Au, Ag, Cu, Pb, Zn, Mn, placer & undergrd  
Engr: A C Arnold

# ALPS MNG & MLG CO

Box 1364, Missoula  
Pres: J P Smith  
VP: Ed Schriber  
Sec-Treas: R T Stiegner  
ALPS MINE & ARGO MINE, 22 mi SW of Clinton, undergrd, W, Au, Ag  
Under devel  
150-TON GRAY-FLOT MILL, Brewster

# AMADOR MINING CO

Superior  
AMADOR MINE, Cedar & Trout Creeks dist, Mineral Co., Ag, Cu

# AMAZON MINING CO

Box 372, Coeur d'Alene, Idaho  
Pres: A E Lunden  
Sec-Treas: Geo M Servick  
MINE, near Heron, Au, Ag, Cu  
Mont Agt: Jus Brooks, Noxon  
Under devel

# AMASSADOR MINES CORP

401 Empire State Bldg.  
Spokane 1, Wash  
Pres & Gen Mgr: M J Unger  
VP: Dale Lanphere  
Sec-Treas: E I Fisher  
AMASSADOR MINE, Box 45, Trout Creek, 10 mi SW of Trout Cr., underground, Au, Ag, Pb, Cu  
Under devel

# AMERICAN ALLOY METALS, INC

1 Montgomery St.  
San Francisco 4, Calif  
Pres: E A Julian  
VP: Frank Elchelberger  
Sec-Treas: Willis Swan  
Project Mgr: R N Ruby  
BROWN'S LAKE, IVANHOE MINES, 8 mi NW of Glen, W  
Under devel

# AMERICAN CHROME CO

1 Montgomery St.  
San Francisco 4, Calif  
Pres: Estley A Julian  
Gen Mgr: John Bley  
Sec: Willis A Swan  
MOAT-SAMPSON CHROME MINE, Nye, 42 mi SE of Columbus, underground, chromite  
1,000-TON TABLE CONCEN  
Under devel

# AMERICAN GOLD CORP

Box 137, Pony  
Pres: H E Boon  
Gen Mgr: J F Kitching  
BOSS TWEED-CLIPPER & ALLIED GROUPS, Pony, Au, Ag  
Under devel

# AMERICAN MACHINE & METALS, INC, TROUT MNG DIV

Phillipsburg  
Gen Mgr: L B Manning  
Asst Gen Mgr: Roy McLeod  
Gen Supt: Roy V Hamilton  
Geol: D Y Meschter  
TROUT-ALGONQUIN GROUP, 3 mi E of Phillipsburg, underground, Mo, Ag, Zn, Pb, Mo, Co  
Prod: 150 tons  
Mine Foreman: Thomas Purdie  
100-TON FLOT MILL  
30-TON GRAY & MAGNETIC CONC  
Mill Foreman: Kenneth Bauer  
(See East)

# AMERICAN SMELTING & REFINING CO

JACK WHITE MINE, Sanders Co., Pb, Zn (See Idaho)  
Mgr: J E Berg  
EAST HELENA PL, East Helena, Custom Lead Smelter  
Mgr: Kuno Doerr, Jr  
(See Ariz, Colo, Calif, Ida, Nev, Tex, New Mex, Utah, Wash, Central & East)

# ANACONDA ALUMINUM CO

Columbia Falls  
Pres: R B Caplen  
VP, Chg of Alum: Frank O Case

Gen Mgr: H G Satterthwaite  
Head Con Engr: Wilbur Jordan  
ALUMINUM REDUCTION PLANT, near Hungry Horse Dam, Kallispell, aluminum  
Under construction

# ANACONDA COPPER MNG CO

Butte  
VP, Chg West Oper: C H Steele  
Gen West Counsel: J T Finlen  
Gen Mgr, West Mng Oper: A C Bigley  
Asst to VP: F A Linforth  
Asst to VP: J H Dickey, Jr  
Asst Sec-Treas: K H Fraser  
Asst Sec: J D Murphy  
Mgr of Mines: E J Renouard Jr  
Gen Supt of Mines: A R Sims  
Consl Geol: R H Sales  
Asst Chief Geol, North Amer: M H Gidel  
Ch Geol Dept, Butte: E P Shea  
Ch Mng Engr: W A O'Kelly  
Ch Sampler: P K Ramsey  
Ch Eng Research Engr: L P Bishop  
Mech Supt: F C Jaceard  
Asst Mech Supt: George Lilly  
Elec Supt: I H Steck  
Chrm, Bureau of Safety: J L Boardman  
Ch Ventil Engr: J W Warren  
Labor Commissioner: Eugene Hogan  
Asst Traffic Mgr: W P Coughlin  
Ch Assayer: W C Gallagher  
Supt, Washoe Sampler: L H Margetta  
Foreman, Fire Filling Dept: Herb Wendell  
Foreman, Precip Pl: J P Ryan  
Foreman, Diamond Drilling & Material Handling: C S Mathews  
BELMONT, ORPHAN GIRL & HIGH ORE MINES, Butte dist, underground, Cu, Zn  
Asst Gen Supt: T H Goss  
Foreman, Belmont: Joseph Canavan  
Foreman, Orphan Girl: Herman Gillis  
Foreman, High Ore: John Scott  
MT CON, ANSELMO, STEWARD & ORIG MINES, Butte dist, underground, Cu, Zn  
Asst Gen Supt: W R Russell  
Mine Supt, Mt Con: V D O'Leary  
Mine Supt, Anselmo: Sam Heatherly  
LEONARD, TRAMWAY, EMMA & TRAVONA MINES, Butte dist, underground, Cu, Zn, Mo  
Asst Gen Supt: Hale Strick  
Mine Supt, Leonard: Russell Powell  
Foreman, Tramway: William Trudeau  
Foreman, Travona: S Hurley  
Foreman, Emma: William Kerruish  
BADGER, LEXINGTON & ALICE MINES, Butte dist, underground, Zn  
Asst Gen Supt: Ed Bonner  
Foreman, Lexington: Ray Laniff  
Foreman, Badger: Elmer Norris  
GREATER BUTTE PROJECT, KELLEY SHAFT, Butte dist, underground, Cu  
Asst Gen Supt: Martin Hannan  
Asst Gen Supt, Filling Oper: Hale Strick  
Mine Supt: John Killoy  
ANACONDA REDUCTION WORKS, Anaconda  
Manager: W E Mitchell  
Asst Mgr: C A Lemmon  
Gen Supt: A E Barnard  
Research Engr: F F Frick  
Asst Res Engr: F L Holderness  
Testing Engr: T G Fulmer  
Met: R G Bowman  
Ch Chemist: C H Gutcheil  
Mech Supt: L E Larsen  
Elec Supt: R P McCarron  
Supt, Const: H F Morris  
Ch Draftsman: E P Dimock  
Supt, Slag & Tings: J A Grant  
Supt, Trammung & Weighing: I C Goose  
Asst Supt, Tram & Weigh: B E Westgaard  
Supt, Surf Dept: W K Smith  
Ch Clerk: S E Ainslie  
18,000-TON COPPER CONCEN, 4,000-TON ZINC CONCEN, 1,500-TON MANGAN CONCEN  
Supt: C F Milkewick  
Asst Supt: F A Roeder, T J Fisher, B T McDonald  
COPPER SMELTER, 150,000 tons per year  
Supt: H J Maguire  
Asst Supt: J H McCrea  
ELECTROLYTIC ZINC PLANT, 84,400 tons zinc per year  
Supt, Elec Zinc Pl: W A Emanuel  
Supt, Roasters: F A Salomonson  
Supt, Zinc Leaching Pl: C M Holstrom  
Supt, Zinc Electrolyzing Pl: K O Sweeney  
SULPHURIC ACID PLANTS, 420 tons 60° Be acid per day  
Supt: M R Hoyt  
Asst Supt: W W Harnory  
TREBLE SUPERPHOSPHATE PLANT, 100,000 tons per year  
Supt: M C Meesner  
Asst Supt: K F Ruckwardt, G C Finkelnburg  
MANGANESE NODULIZING PLANT, 370 long tons per day  
Supt: F Cole

FERROMANGANESE PLANT, 230 long tons per month  
Supt: J R Moore  
Asst Supt: E S Bostick  
DUST TREATING PLANT, 1.800 tons white arsenic per month  
Supt: J J Dougherty  
GREAT FALLS FERRITE MNG Great Falls

Gen Supt: F S Wagoner  
Asst Gen Supt: T F Graham  
Tech Consul: E S Bostick  
Mech Supt: J W Brown  
Met: R J Lapee  
Ch Clerk: W P Smith  
FURNACE & ELECTROLYTIC COPPER REFINERY, 100,000 (50,000 tons per year)  
Supt: R H Miller  
Asst Supt: C V Sargent  
ELECTROLYTIC ZINC REFINERY, 180,000 tons per year  
Supt: G T Weaver  
Asst Supt: R H Baldwin  
ELECTRIC FERROMANGANESE FURNACE, 400 long tons per month  
Supt: R H Townsend  
EAST HELENA SLAG FUMING PL, 250,000 tons per year  
Supt: R H Baldwin  
Asst Supt: R L Thompson  
(See Calif, Nev, Idaho, Utah & Kan)

# ANDERSON BROS

Lewistown  
BLACK DICK MINE, Warm Springs dist, Fergus Co., Cu

# ANTIONIGLI, PETER

1001 W Gold St, Butte  
SILVER PRINCE MINE, Granite Co., EIGHT-BALL MINE, Argenta dist, Beaverhead dist, Au, Ag  
SCRATCH AWE MINE, Fint Creek dist, Granite Co., Ag, Au, Pb, WHITEHALL MINE, Whitehall dist, Jefferson Co., Au, Ag, Pb, Zn

# ARMSTRONG MINE

Rimmi  
Opr: M G Nead, Rimmi  
MINE, Pimmi dist, Lewis & Clark Co., Ag, Cu, Pb, Zn

# ARMSTRONG MINE

Rimmi  
Opr: M G Nead  
MINE, Pimmi dist, Lewis & Clark Co., Ag, Cu, Pb, Zn

# AUROA MINING CO

228 Halls Bldg, Butte  
Gen Mgr: Don Keith  
AUROA MINE, 3 mi SW of Basin, underground, Pb, Zn, Ag  
Foreman: Don Keith  
Under devel

# AZURE MINE

Superior  
Opr: Kermit Swan  
MINE, Cedar & Trout Cr dist, Mineral Co., Ag, Cu, Pb, Zn

# BAILEY, R L

Dodson  
GOLD, SILVER, WAB & other mines 50 mi SW of Malta, Au, Ag, Pb  
Under devel

# BALD BUTTE MINE

Marysville  
Opr: Morris Lawler  
MINE, Marysville dist, Lewis & Clark Co., Au, Ag, Cu

# BARNES, O A

100 W Main, Helena  
CASWELL PLACER, Lewis & Clark Co., dragline dredge, Au

# BASSETT, S P

Rimmi  
Opr: J Hampton  
MINE, Rimmi dist, Lewis & Clark Co., Ag, Cu, Pb, Zn

# BAYLESS MINE

Norris  
Opr: Carl Polson & C White  
MINE, Norris & Norwegen dist, Madison Co., Au, Ag, Cu, Pb, Zn

# BENNETT MINING CO

Box 123, Great Falls  
Pres: Carroll R Bennett  
Gen Mgr & Purch Agt: F B Clatter  
DAGOTTA MINE, Neenah, undergrd Zn, Pb, Ag, Au  
Under devel  
FLOT MILL

# BERTHA MINE

Helena  
Opr: Norman Rogers  
P O Box 178, Great Falls  
MINE, Summit Valley dist, Silver Bow Co., Cu



**BIG BLUE MINE**  
Opr: E. W. Wade & A. J. Madsen,  
Cuba  
MINE, New World dist, Park Co,  
Ag, Cu, Pb, Zn

**BIG EIGHT MINE**  
Troy  
Opr: Ed St. Caflery  
MINE, 4 mi from Troy, Zn, Pb, Ag

**BIG SNOW MINE**  
Whitehall  
Opr: Nathan D. Pruett, Whitehall  
MINE, GOLD HILL GROUP, Renova  
dist, Madison Co., Au, Ag

**BLACK & WHITE MNG CO**  
318 N Ave W, Missoula  
Pres & Gen Mgr: Roger F. Little  
BROOKLYN MINE, Maxville, 4 mi  
S, J. Phillipsburg, underground &  
surface, Ag, Pb, Zn, Cu, Mn  
(Under devel)

**BLACK PINE MINE**  
Phillipsburg  
Opr: Ben Walkup  
MINE, Henderson dist, Granite Co.,  
Ag, Cu, Pb, Zn

**BLACKFOOT LEAD MNG CO**  
Union  
CANYON, CHARCOAL MINES,  
Wallace dist, Missoula Co., Ag, Pb, Cu, Zn  
Idle

**BLUE BIRD MINE**  
Wilkes  
Opr: Macintosh & Chamberlain  
BLUE BIRD MINE, 4 mi W of Wilkes,  
underground, Au, Ag, Cu, Pb  
(Under devel)

**BLUE DOT MINING CO**  
Dillon  
Incorpts: O. Argerbright, M.D.  
Argerbright, Dillon, E.T. Bluechel,  
Missoula

**BOSS ATLANTIS MINES**  
Opr: Glen Zorn, C.E. Vanmaw  
MINE, Cascade Co  
Explor

**BOULDER MINE**  
Basin  
Opr: James Bragg  
MINE, Cataract dist, Jefferson Co.,  
Au, Ag, Cu, Pb, Zn

**BRANDON GOLDFIELDS, INC**  
218 Newark Ave, Spokane, Wash  
Pres: S.A. Morford  
Sec-Treas: Jack Brandon  
MINE, 33 mi from Superior  
Idle

**BRENNER, CHARLES**  
PLACER on Cold Cr., Horse  
Prairie dist, Beaverhead Co., Au

**BROWN BEAR MINE**  
Norris  
Opr: O.A. Hargrave  
MINE, Norris & Norwegian dist,  
Madison Co., Ag, Pb, Zn

**BULLWACKER MINE**  
Helena  
Opr: Norman Rogers  
Box 1719, Helena  
MINE, Summit Valley dist,  
Silver Bow Co., Cu

**BULLS MINING CO**  
1001 E Broadway, Missoula  
Pres & Gen Mgr: C.F. Bois  
ST LAWRENCE MINE, Saltese,  
underground, Ag, Cu  
Idle

**BURGESS, STARRETT J**  
1815 Highland St, Helena  
CAPITOL MINE, Argenta dist,  
Beaverhead Co., Ag, Cu, Pb, Zn  
OVERLAND MINE, Montana City  
dist, Jefferson Co., Ag, Pb, Zn  
SCRATCH GRAVEL MINE, Scratch  
Gravel dist, Lewis & Clark Co.,  
Au, Ag, Cu, Pb, Zn

**BUTTE COPPER CONS MINES**  
305 Montana Standard Bldg, Butte  
Pres: C.J. Trauerman  
30 DANDY GROUP, Radersburg, Ag, Pb

**BUTTE COPPER & ZINC CO**  
363 Lewiston Bldg, Butte  
EMMA MINE GROUP, underground,  
Mn, Zn, Pb, Au, Ag  
Engr: Samuel Barkern, Jr  
(Operated by Anaconda Copper  
Mng Co) (See East)

**CALEDONIA SILVER-LEAD  
MNG CO**  
Lewistown  
ROCKITE CLAY MINE  
(See Idaho)

**CALUMET MINE**  
Opr: R.J. Christian  
1700 37th Ave NE, Seattle, Wash  
MINE, Cedar & Trout Creek dist,  
Mineral Co., Au, Ag

**CAMANCHE EXTENSION**  
Phillipsburg  
Opr: Neal Reents  
MINE, Flint Creek dist, Granite Co.,  
Ag, Cu, Zn

**CANUSCO, INC**  
Huson  
Pres: R.H. Pouley  
VP: R.C. Dempster  
Sec-Treas: E.V. Dempster  
MINE, Huson, Au, dragline dredge  
Supt: R.P. Wells  
CARBONATE MINE, Whitehall dist, Pb  
Opr: Lester Lindquist

**CANYON LODE MNG CO**  
219 Radio Central Bldg, Missoula  
Pres: R.R. Wallace  
VP: Roy Wallace  
Sec: Herbert C. Fisher  
Geol: Earl F. Elston  
CABLE MINE, Anaconda, 15 mi NW  
of Anaconda, underground & placer, Au, Cu  
100-TON FLOT MILL  
Idle

**CARBONATE MINES, INC**  
Marysville  
Mgr: Maurice Lawlor  
BALD BUTTE MINE, underground,  
near Marysville, Pb, Ag, under devel  
CARBONATE MINE, underground,  
near Marysville, Pb, Ag, under devel

**CARLSON, ALBERT**  
NORTH BOULDER MINE,  
Jefferson Co  
Explor

**CASTLE LEAD & ZINC CO**  
Lewistown  
YELLOWSTONE MINE, Castle Mt  
dist, Meagher Co., Ag, Pb, Zn

**CASTLE, HARRY**  
Winston  
BELMONT MINE, Lewis & Clark  
Co., Au

**CLEO MINE**  
Townsend  
Opr: George I. Rider  
MINE, Cedar Plains dist,  
Broadwater Co., Cu, Pb, Zn

**CLIPPER BULLION MNG CO**  
Troy  
Mgr: C.W. Thornton  
KEYSTONE & HAYWIRE MINES,  
near Troy, undergrd, Au, Ag, Pb, Zn  
FLOT-CYAN MILL

**COEUR D'ALENE EXT MINES**  
Wallace, Idaho  
MINE, Superior, CaF<sub>2</sub>  
Mgr: James E. Scott

**COLMONT URANIUM  
MINES CO**  
Incorpts: F.M. Mosier, Townsend,  
R.G. Bayles & Richard Bayles, Roseman

**COLORADO MINE**  
535 E Mercury St, Butte  
Opr: Nick Vujovich  
MINE, Summit Valley dist, Ag

**COLUMBIA MNG CO, INC**  
604 Placer Hotel Bldg, Helena  
Pres: Jesse Malone  
VP: E.W. O'Loughlin  
Gen Mgr & Sec: C.H. Mitchell  
COLUMBIA MINE, at southern city  
limits of Helena, undergrd, Cu, Ag, Au  
Under devel  
Mine Foreman: Leslie L. Hoberg

**COMBINATION MINE**  
Phillipsburg  
MINE, Black Pine dist, Granite Co., W  
Under devel

**COMET MINE**  
Basin  
Opr: John & Harold Guitler  
MINE, Cataract dist, Jefferson Co.,  
Ag, Cu, Pb, Zn

**COMMONWEALTH LEAD MNG**  
424 Felt Bldg, Salt Lake City, Utah  
Pres: J.F. Featherstone  
Sec-Treas: D.R. Featherstone  
CALVIN MINE, Melrose, undergrd,  
Au, Ag, Pb, Zn  
Engr: R.E. Marsell  
Foreman: R.J. Hirst

**CONCORD LEXINGTON MNG CO**  
Neilhart  
LEXINGTON MINE, Montana dist,  
Cascade Co., Ag, Pb, Zn

**CONSOLATION MINE**  
Lewistown  
Opr: Earl Neece & Tillotson Bros  
MINE, Heddleston dist, Lewis &  
Clark Co., Ag, Pb, Zn

**CONTACT MINING CO**  
Phillipsburg  
MINE, Flint Creek dist, Granite  
Co., Au, Ag, Cu, Pb, Zn

**COPPER CANYON MNG CO**  
Incorpts: Lee Shook, Zella Shook &  
Ernest Shook, Hamilton

**COPPER KING MINE**  
Helmer  
Opr: George Brazill  
MINE, Boulder & So Boulder dist,  
Granite Co., Ag, Cu

**COPPEROPOLIS MINE**  
Opr: George Gormley  
807 S Main St, Butte  
MINE, Musselshell dist,  
Meagher Co., Cu

**CORNUCOPIA MINES CO**  
Box 214, Virginia City  
Mgr: Henry Shute  
MINE, Virginia City dist, Madison  
Co., underground, Au, Ag

**CRONADO COPPER &  
ZINC CO**  
Butte district  
Eng in Chg: M.G. Grant  
BLUE BIRD GROUP, Western  
Butte dist, exploration  
(See Ariz & Calif)

**COSTER MINE**  
Winston  
Opr: George Pankovich  
MINE, Park or Indian Creek dist,  
Broadwater Co., Au, Ag, Pb, Zn

**CRESCENT MINE**  
Opr: William A. Hall  
Box 295, Helena  
MINE, Cataract dist, Jefferson  
Co., Au, Ag, Cu, Pb, Zn

**CRITCHFIELD, RAYMOND**  
Box 132, Whitehall  
PARROT MINE, 4 mi NE of  
Whitehall, underground, Au, Ag  
Idle

**CRUMB, RAY W**  
Avon  
HUMDINGER MINE, 21 mi N of  
Avon, underground, Au, Ag  
Under devel  
4-TON GRAY MILL

**CUMBERLAND MINES**  
White Sulphur Springs  
Pres: Russell Manger  
VP: Richard Manger  
Mgr: C.H. Oliphant  
CUMBERLAND MINE, 8 mi  
from Lennep, Pb, Ag, Zn  
Under devel

**DAILY WEST MINE**  
Basin  
Opr: Geo. Freyler & J.M. Gill  
MINE, Cataract dist, Jefferson  
Co., Ag, Cu, Pb, Zn

**DALE, C O & SONS**  
Twin Bridges  
POLLY JANE MINE, Madison  
Co., Pb

**DAVIS, RALPH E**  
1434 Commerce Bldg,  
Houston, Tex  
PLACERS, Barton Gulch, Box C  
Alder, hydraulic dragline  
Mgr: Russell Urue

**DEER HORN MINE**  
Helena  
Opr: William & Tom O'Brien  
MINE, Wilson & Ticer Creeks dist,  
Jefferson Co., Ag, Cu, Pb, Zn

**DIADEM MINING CO**  
419 Sprague Ave,  
Spokane, Wash  
Pres & Gen Mgr: J.F. Arnold  
VP: F.L. Carpenter  
DIADEM MINE, 6 mi SE of Wilson,  
underground, Au, Ag, Cu, Pb, Zn, Mn, Sb  
Engr: A.C. Arnold

**DIAMOND HILL MINE**  
Townsend  
Opr: Paul Engh  
MINE, Park or Indian Creek dist,  
Broadwater Co., Au

**DIKE MINE**  
Whitehall  
Opr: J.L. Lindquist  
MINE, Whitehall dist, Jefferson  
Co., Ag, Cu, Pb, Zn

**DISCOVERY & UNCERTAIN  
MINES**  
Canyon Creek  
Opr: Karl Kvasny  
MINES, Canyon Creek dist, Lewis &  
Clark Co., Au, Ag

**DIXON COPPER CO**  
Raman  
Pres: Ed Braholm  
Sec-Treas: R.T. Maxwell  
BLUE OZ CLAIMS, 6 mi SE of  
Dixon, Au, Cu  
Under devel

**DOMESTIC MANGANESE &  
DEVEL CO**  
Box 177, Butte  
Pres: J.H. Cole  
VP: H.A. Pumpelly  
Sec-Treas: Cathryn C. Keith  
Gen Supt: Carl Martin  
300-TON FLOT MILL, with  
modulizing pit for rhodocrosite

**DOUBLE EAGLE TUNGSTEN  
CO**  
Box E, Phillipsburg  
Pres & Gen Mgr: W.B. McLure  
VP: E.T. Irvine  
Sec-Treas: W.L. Degenhart  
DOUBLE EAGLE MINE, 12 mi NW  
of Phillipsburg, W. Co., Pb, Ag  
Shiftblows: C.D. McLure

**DRACKERT & FLINT**  
Pony  
OLD JOE WEST EXT MINE, Au  
Idle

**EAST PACIFIC MINE**  
Winston  
Owner: H. Carver  
MINE, 6 mi SW of Winston, Ag, Pb, Zn

**EDNA #2 MINE**  
Winston  
Opr: M.L. Miles  
MINE, Beaver dist, Broadwater  
Co., Au, Ag, Cu, Pb

**EDWARDS MINE**  
Manarch  
Opr: Thorsen & Brazee  
MINE, Barker dist, Judith Basin  
Co., Ag, Cu, Pb, Zn

**ELDORADO MINING CO**  
304 Broadway, Helena  
Pres: O.W. Pollard  
ELDORADO MINE, 12 mi N of  
Avon, underground, Cu, Au, Ag  
30-TON FLOT MILL

**ELKHORN MINING CO**  
Boulder Bank Bldg, Boulder  
Pres & Gen Mgr: W.V. Lewis  
VP: W.S. Doyle  
Sec-Treas: J.T. Lewis  
Office Mgr & Purch Agt: Fergus  
C. Fay  
ELKHORN, FREE ENTERPRISE,  
4th & LAST CHANCE MINES,  
underground, Pb, Ag, Zn, Au, U, Th &  
rare earths, under devel  
Foreman: W.B. Smith  
Engr: Wade V. Lewis  
CLANCY URANIUM MINE, 2 mi S  
of Clancy, underground, U, under  
devel  
Prod: 5 tons

**ELLISTON CONS MINING CO**  
Elliston  
Pres & Gen Mgr: L.T. Newman  
VP: C.L. Heigen  
Sec: D.E. Newman  
Treas: Victor Frost  
LILLY, SURE THING, JULIA &  
COPPER KING GROUPS, 10 mi S  
of Elliston on Telegraph Creek,  
underground, Au, Ag, Pb, Zn, Cu  
Under devel

**EMMA MINE**  
Opr: John R. Halverson  
107 Hamilton Ave, Butte  
MINE, Vipond dist, Beaverhead  
Co., Ag

**ESTHER MAY CORP**  
Troy  
Incorpts: Lubin & Mary Loveland  
& R.V. Lower, Eureka

**EVERGREEN MINE**  
Opr: A.T. Cooper  
Box 362, Helena  
MINE, Rimini dist, Lewis & Clark  
Co., Ag, Pb, Zn

**F M S MINING CO**  
Garnet  
Dir: Faulkner, Grimesher &  
Sutherland, Missoula  
MITCHELL-MUSSIGBROD MINE &  
DUMPS, garnet, Au  
Under devel

**FAITH MINING CO**  
Monarch  
FAITH GROUP, Barker dist,  
Judith Basin Co., Ag, Cu, Pb, Zn

**FAITHFUL GOLD MNG CO**  
Dillon  
Gen Mgr & Purch Agt: D V Erwin  
FAITHFUL GOLD, ALICE LEAD &  
BADGER GOLD MINES, Dillon,  
Ag, Au, Pb

**FALK METALS CORP**  
210 Mercantile Bldg, Denver 2,  
Colorado  
BELLE CANYON MINE, Au, Ag

**FERDINAND MINE**  
Argentina  
Opr: R Nygren & E Dubie  
MINE, Argentina dist, Beaverhead  
Co., Ag, Cu, Pb, Zn

**FERNSPLAT MINING CO**  
Incorp'ts: Jos Treloar, E J &  
D C Treloar, Kalispell

**FLINT, JAMES A & SONS**  
Bank Bldg, Pony  
LOUISIANA, CHILE, AMY LOUISE,  
& others, Madison Co., Au, Ag, W, Cu,  
Idle  
TUNGSTEN GROUP, 12 mi S of Pony,  
underground, surface, W  
MINING STATES GROUP, W

**FLORENCE COMPANY**  
c/o A D Reider, Big Fork  
Pres: A D Reider  
VP: Mary Reider  
Sec: C J Trauerman  
MINUTE MAN GROUP, 5 mi SE  
of Neihart, Pb, Zn, Cu, Ag  
Idle

**FRANKLIN MINE**  
Opr: Frank Carlson, Basin  
MINE, Lowland dist, Jefferson Co.,  
Au, Ag, Cu

**GALENA MINE**  
Norris  
Opr: W R Hughes  
MINE, Norris & Norwegian dist,  
Au, Ag, Cu

**GALT MINE**  
Opr: Lewis B Stark, Neihart  
MINE, Montana dist, Cascade Co.,  
Au, Ag, Cu, Pb, Zn

**GARFIELD MINE**  
Rimini  
Opr: W A Hall  
MINE, Rimini dist, Lewis & Clark  
Co., Au, Ag, Cu, Zn

**GARRISON MINING CO**  
Virginia City  
Pres & Gen Mgr: Rupert Garrison  
Sec: Fred H Stewart  
GARRISON MINE, 8 mi S of Virginia  
City, underground, Au  
Under devel

**GEYSER GYPSUM CO**  
Geysers  
Dirs: Storm, McKay & Martin

**GILDERSLEEVE BROS MINES**  
Superior  
Gen Mgr: G M Gildersleeve  
BONANZA GROUP QUARTZ &  
STENWINDER PLACER MINE,  
17 mi S of Superior, underground &  
placer, Pb, Ag, Cu, Au  
Idle

**GINLIO, JOHN**  
SILVER HILL MINE, Jefferson Co  
Exploration

**GIRDS CREEK VERMICULITE  
PRODUCTS CO**  
Box 369, Hamilton  
Pres: Robert Chamberlain  
Sec: E G Brownlee  
VP: Cliff Jacobson  
BITTER ROOT MINE, 11 mi E of  
Hamilton, vermiculite  
EXPLOIATION PL, Hamilton

**GOLCONDA MNG CO, INC**  
15 Pittsburg Bldg, Helena  
Pres: M I Leydig  
Sec: C P Whitcomb  
BUCKEYE GROUP, 7 mi SE of  
Jefferson City, Au, Ag, Pb  
100-TON CYAN CONC MILL

**GOLD CLIFFS MINES CO**  
Incorp'ts: F P Madden, F P Patterson,  
& W R Allen, Jr, Dillon

**GOLD KING MINE**  
Opr: Clarence Woody, Maxville  
MINE, Boulder & S Boulder dist,  
Granite Co., Au, Ag, Cu

**GOLD STAR MINE**  
Opr: G S Stadler, Whitehall  
MINE, Whitehall dist, Jefferson Co.,  
Ag, Cu, Pb, Zn

**GOLDEN, B L**  
Sheridan  
BILLY BENNETT MINE, 9 mi N  
of Sheridan, underground  
Idle

**GOLDEN ANCHOR MNG & MLG**  
Spokane, Wash  
Pres: H L Newmiller  
VP: C F Davis  
Sec: Helen Newmiller  
EVENING STAR & BLACK JACK  
MINES, near Elliston, Au, Ag, Pb  
Under devel

**GOPHER MINE**  
Opr: Arthur A Berg, Radersburg  
MINE, Cedar Plains dist, Broadwater  
Co., Au, Ag, Cu, Pb, Zn

**GOVERNOR TILDEN MINE**  
Opr: Rudy Nygren, Dillon  
MINE, Argentina dist, Beaverhead  
Co., Au, Ag, Cu, Pb, Zn

**GRANT-JOHNSON MINE**  
267 Second Ave, EN, Kalispell  
MINE, 30 mi W of Kalispell, dote  
& tunnel operations, Au, Ag, Cu  
Under devel

**GRAY JOCKEY MINE**  
Opr: Neil Churchill, Butte  
MINE, Vipond dist, Beaverhead Co.,  
Ag, Cu

**GREENSTONE COPPER MINE**  
Box 421, Dillon  
Pres: G W Farlin  
Sec-Treas: Grace E Kennedy  
Gen Mgr: Carl Kennedy  
GREENSTONE MINE, 18 mi NW of  
Dillon, W, Cu, Ag, Au (Open pit  
operations leased to Minerals Engr  
Co of Colo)  
IVANHOE MINE, 30 mi NW of Dillon,  
underground, W, Cu, Ag (Leased to  
American Alloy Metals Co)

**GROUSE MINE**  
Opr: McMurtrey & Knitter,  
Twin Bridges  
MINE, Tidal Wave dist, Madison  
Co., Ag, Cu, Pb, Zn

**H & S MINE**  
Opr: Frank Bjorn, Grant  
MINE, Chinatown dist, Beaverhead  
Co., Ag, Pb, Zn

**HARD LUCK MINE**  
Opr: Ray Ward, Elliston  
MINE, Nigger Hill dist, Powell Co.,  
Ag, Pb, Zn

**HARTLEY MINE**  
Opr: Wm Mahama, Neihart  
MINE, Montana dist, Cascade Co.,  
Ag, Pb, Zn

**HEADS & TAILS MNG, MLG &  
LUMBER CO, INC**  
Butte  
Owners: Dunn, Lloyd, Pomeroy,  
Kelling & Dwyer

**HI-ORE MINE**  
Opr: Wm Hagman, Boulder  
MINE, Amazon dist, Jefferson Co.,  
Ag, Pb, Zn

**HI-RIDGE MINE**  
Twin Bridges  
Owner: J C Roberts  
MINE, 6 mi E of Twin Bridges, Au, Ag  
Mgr: James P Reed

**HIDDEN TREASURE MINE**  
Opr: Ralph Mellor, Clinton  
MINE, Cataract dist, Jefferson Co.,  
Ag, Cu, Pb, Zn

**HOKANSON BROS**  
Box 34, Norris  
Opr: G E & Fred Hokanson  
PEARL GROUP, 7 mi SW of Norris,  
Au, Ag, Pb, underground  
Under devel

**HOPKINS & SON MNG CO**  
401 Montana Ave, Helena  
CHARTER OAK MINE, Nigger Hill  
dist, Powell Co

**HUGHES CREEK MINE**  
Opr: Asbury Smith, Hamilton  
MINE, Overwich dist, Ravalli Co.,  
Au, Ag

**HUMBOLT MINE**  
Opr: J E Johnson, Helena  
MINE, Summit Valley dist, Silver  
Bow Co., Ag, Pb, Zn

**HUNT MINING CO, INC**  
Box 65, Laurin  
Pres: M Z Hunt  
Gen Mgr: A E Hunt  
BINS, GOLD NUGGET, BULL RUN &  
CALIFORNIA GROUPS, Laurin, under-  
ground, surface & placer, Au, Ag, Pb  
Foreman: Toney Ravona  
Mech Engr: Elbert Pack  
GRAV-FLOT MILL, 25-ton furn  
Foreman: Karl Caldwell

**IDAHO MINE**  
Opr: A J Grace, Butte  
MINE, S Elkhorn dist, Jefferson Co.,  
Cu, Pb, Zn

**INDEPENDENT MINE**  
Opr: F P Schreiner, Hassel  
MINE, Park or Indian Cr dist,  
Broadwater Co., Au, Ag

**INTERNATL MIN &  
CHEM CORP**  
Drummond  
PHOSPHATE MINES & PLANT  
(See Ariz, Calif, Colo, New Mex,  
So Dak, Wyo, Central, South &  
East)

**INTERSTATE PRODUCTS CO**  
Boreman  
MINE, near Gallatin Gateway,  
asbestos  
Pres: C A Lester

**IRON MT LEASING CO**  
Superior  
Mgr: E G Smith, Osborn, Idaho  
IRON MT MINE, Pb, Zn, Ag  
(Leased from Fed Mng & Smelt Co,  
Idaho)

**JACK GROUP MNG CO**  
Dillon  
JACK GROUP MINE, Argentina dist,  
Beaverhead Co., Au, Ag, Pb, Zn

**JANUARY MINING CO**  
414 Flowerree St, Helena  
Pres & Gen Mgr: Geo G E Neil  
JANUARY MINE, 6 mi S of Winston,  
underground, Pb, Ag, Au, Zn  
Prod: 10 tons  
Mine Supt: Arthur Hogan

**JARDINE MINING CO**  
Jardine  
VP & Gen Mgr: G T Vandel  
Purch Agt: E L Conn  
MINE, underground & surface, Au, W  
Supt: B F Onstott  
350-TON CYAN FLOT MILL

**JEFFERSON FOUNDATION**  
Boulder  
Incorp'ts: L D Drury, Nellie &  
Ed C Hughes, E R Schenk &  
M G Driggs  
SUNSHINE URANIUM MINE,  
Basin dist

**JUPITER MINING CO**  
Day Bldg, Box 1010, Wallace  
Pres: H L Day  
Sec-Treas: R W Anno  
MINE, near Saltese, underground,  
Pb, Ag, Cu  
Idle

**KEATING MINE**  
Opr: Wayne Miller & Jas Holling,  
Radersburg  
MINE, Cedar Plains dist,  
Broadwater Co

**KIT CARSON MINE**  
Opr: Geo Rings & N P Newby  
Basin  
MINE, Rimini dist, Lewis &  
Clark Co., Au, Ag, Cu

**KLEINSCHMIDT MINE**  
Opr: Cecil Johnson, Winston  
MINE, Beaver dist, Broadwater Co.,  
Ag, Cu, Pb, Zn

**KOOTENAI MINING CO**  
Libby  
Incorp'ts: R H McConnel &  
A E Nugent, Kellogg, Ida &  
J E Gyde, Wallace, Ida

**LADY LEITH MINE**  
Opr: A Loiselle & M Young  
Basin  
MINE, Cataract dist, Jefferson  
Co., Ag, Pb, Zn

**LAHEY LEASING CO**  
506 W Aluminum St, Butte  
Mgr: Ed Lahey  
ALTA MINE, Colorado dist,  
Jefferson Co., Au, Ag, Cu, Pb, Zn

**LANTIS, G D**  
Lincoln  
BIG ROCKS PLACER, 9 mi SW  
of Lincoln, Au  
LADY LUCK PLACER, 7 mi SW  
of Lincoln, under devel

**LARSON, G L**  
345 3th Ave, Helena  
LARSON MINES, Park & Park  
Co., Ag

**LEAD LODGE**  
Opr: C W Swain, Pony  
LODE, Pony & Boulder dist,  
Madison Co., Pb, Zn

**LEE MOUNTAIN DUMP**  
Opr: A T Connor, Helena  
DUMP, Rimini dist, Lewis &  
Clark Co., Au, Ag, Pb, Zn

**LEHMAN, WALTER**  
Box 780, Lewiston  
SIR WALTER MINE, 17 mi  
W of Lewiston, Ag, Pb, Zn  
Under devel

**LETUS MINING CO**  
Incorp'ts: Gene L Waa, Jerome  
& Betty Markes, Phillipsburg  
MINES, 25 mi SE of Phillipsburg

**LEXINGTON SILVER-LEAD  
MINES, INC**  
Neihart  
Pres: J A Allen  
BIG SEVEN MINE

**LIBBY GOLD CORP**  
745 Peyton Bldg, Spokane, Wash  
Pres: J W Douglas  
VP: S S Schuchert  
Sec-Treas: R P Kneib  
Mgn Dir: Barth Keely  
LIBBY GOLD MINE, 8 mi from  
Libby, Ag, Au, Pb  
Under devel

**LIBERTY MONTANA  
MINES CO**  
Jefferson Island  
Pres: W D Corrigan, Sr  
MAMMOTH MINE, Madison Co.  
Au, Ag, Cu  
Gen Mgr: A J MacGregor  
150-TON FLOT MILL  
Idle

**LINTON MINING CO**  
Missoula Hotel, Missoula  
Gen Mgr: T J Linton  
BLACKTAIL MINE, 25 mi E of  
Missoula, underground, Pb, Ag  
Prod: 150 tons  
Foreman: Ralph Mellor  
500-TON HEAVY MED MILL  
Foreman: Walter Chandler

**LITTLE ANNIE MINE**  
Opr: John Selak, Wundt  
MINE, Park or Indian Cr dist,  
Broadwater Co., Au, Ag, Cu

**LITTLE BONANZA MINE**  
Opr: William Zimmerman, Avon  
MINE, Beaver dist, Broadwater Co.,  
Ag, Pb, Zn

**LITTLE SAMPSON MINE**  
Opr: Ed Drescher  
MINE, Rimini dist, Lewis &  
Clark Co., Ag, Pb, Zn

**LOUIS PHILIPPE MINE**  
Dillon  
Owner: I B Hand  
Mgr: John Hand  
MINE, underground, Au, Ag, Pb  
Engr: Bill Hand

**LUCKY HIT MINE**  
Whitehall  
Owner: G W Wolge  
MINE, Jefferson Co., Cu, Pb, Zn  
Under devel

**LUCKY BUD MINE**  
Opr: Al Kinery  
MINE, Sheridan dist, Madison Co.,  
Ag, Cu, Pb, Zn

**LUCKY LEAD MINES, INC**  
219 Radio Central Bldg, Missoula  
Pres & Gen Mgr: Earl T Ellis  
VP: C Gale Gleason  
Sec: Herbert C Fisher  
Met: Carl C Martin  
Geol: Earl F Elstone  
NONPARIEL MINE, 7 1/2 mi SE of  
Maxville, surface, Pb, Ag  
Prod: 90 tons  
Mine Supt: Orville Lammers  
90-TON GRAV-FLOT MILL,  
Boulder Creek  
Mill Supt: Ed Pierce

**LUCKY STRIKE MINE**  
Opr: Earl Heaps, Virginia City  
MINE, Cherry Cr dist, Nye Co.,  
Co., Ag, Pb, Zn

**LUITON MINING CO**  
Bonita  
Mgr & Incorp'ts: Thos L Luiton  
MINE, 4 mi N of Bonita, copper  
Cliff dist, Pb

**LUKE, RUSSELL B**  
301 E. 1st St., Butte  
JACK FINE MINE

**MADISONIAN MNG & MLG CO**  
West Yellowstone  
Pres: W. A. Lester  
MNG & MLG CO, deval chrysolite  
accessory camp at Cliff Lake

**MAGNA CARTA MINE**  
Alaska  
Opr: Michael Rakish  
MINE, Summit Valley dist, Ag

**MANGEF, RUSSELL & RICHARD**  
White Sulphur Springs

**SNOW HANK, PORCUPINE & BOUBRON MINES**, 18-22 mi  
from White Sulphur Springs,  
underground, Au, Ag, SiO<sub>2</sub>  
13-TON GRAY MILL

**MARIE MINE**  
Opr: Joe Marza, Philipsburg  
MINE, Flint Cr dist, Granite  
Co, Ag, Pb, Zn

**MARIETTA MINES**  
Box 29, Townsend  
MINES, 17 mi NW of Townsend in  
Park dist, Au, Ag, Pb, Zn  
Mgr: Al Dance  
Supt: Harry Anders

**MARTIN MINING CO**  
Kalispell  
Pres: Hans Tutvedt  
VP: Ben Schlegel  
Sec-Treas: T. R. Flynn  
MINE, Flathead Co, underground,  
Ag, Pb, Cu, Zn  
Supt: Waino Lindbom  
10-TON MILL  
Idle

**MASTER MINE**  
Opr: E. M. Oliphant, Lewiston  
MINE, Warm Springs dist,  
Fergus Co, Ag, Cu, Pb, Zn

**MASTER MINING CO**  
6323 Avondale Ave, Chicago, Ill  
Pres: O. L. Rhoades  
MINE, Gold Creek, Au, dragline  
tredge  
Mgr: J. H. McIntosh

**MAULDEN MINE**  
Dillon  
Opr: Ida B. Hand  
MINE, Argenta dist, Beaverhead  
Co, Pb, Ag

**MAYWOOD, MRS G A**  
Box 45, Palm City, Calif  
MONTANA-TONEPAH MINE,  
3 mi E of Maxville, placer  
Idle

**McLAREN GOLD MINES CO**  
Cooke  
Pres: Owen B. Jones  
VP: Joseph H. Schaffner  
Sec: C. G. Grimes  
Gen Mgr: William H. Hsieh  
Mech Engr: Arthur Madsen  
MINE, 3 mi N of Cooke, surface,  
Cu, Au, Ag  
Prod: 175 tons  
75-TON GRAV-FLOT MILL  
Mill Foreman: Tom McGrath  
Assayer: Martin Sherlock

**McLAUGHLIN BROS**  
Stevensville  
Gen Mgr: Carl C. McLaughlin  
JACK RABBIT MINE, 7 mi E of  
Metrose, shaft, Pb, Ag, Au  
Idle

**McLEOD, W C**  
Box 588, Dillon  
GOLDEN LEAF MINE, Beaverhead  
Co, placer, dragline & washing pl, Au  
Idle

**MERRILL MINE**  
Box 184, Libby  
Owner: Amzel Templin  
MINE, Au, Ag, Pb, Zn, under devel  
20-TON FLOT MILL

**METALS MILLING CO, INC**  
Basin  
Pres: B. H. Linn  
Sec: Will Derig  
Treas: Roy Brennon  
RED ROCK MINE, 3 mi W of  
Basin, Pb, Zn, Ag, Au  
Prod: 40 tons  
Mise Engr: John MacGinniss  
130-TON CUSTOM FLOT MILL  
Mine & Mill Supt: Frank Sall  
Met: Don Ober  
Srv Engr: Pete Brady

**MIDNITE & MORNING MINE**  
Oprs: D. A. DuBois & G. C. Holshue  
Basin  
MINE, Cataract dist, Jefferson Co,  
Au, Ag, Cu, Pb, Zn

**MIDWAY MINE**  
Oprs: M. Hagman & A. S. Wanson  
Boulder  
MINE, Colorado dist, Jefferson Co,  
Ag, Cu

**MILLER, JACK, MINE**  
Box 333, Drummond  
Gen Mgr: W. A. Noon  
MINE, Au, Ag, Pb  
Under devel

**MINAH DEVELOP CO**  
Butte  
Mgr: A. E. Nugent  
MATSON & NORTH ALTA  
GROUPS, Jefferson Co  
Under devel

**MINERAL KING MNG CO**  
1001 E Broadway, Missoula  
Pres & Gen Mgr: C. F. Buis  
MINERAL KING MINE, 3 mi N of  
Saltese, underground & surface,  
Au, Ag, Pb, Zn  
Under devel  
4 Leased to Fed Mng & Smelt, Ida

**MINERALS ENG CO**  
Glen  
Gen Mgr: M. N. Shaw  
Met: Allan Burwell  
LOST CREEK TUNGSTEN PROP,  
Beaverhead Co, 7 mi W of Glen,  
underground & surface, W. Mo  
Mine Supt: William B. Tobey  
Mine Engr: James Ternahan, Jr  
Under devel  
(See Colo)

**MINES PROSPECTING & EXPLOR CO**  
218-219 Radio Central Bldg,  
Missoula  
Pres: Earl F. Elstone  
VP: R. R. Wallace  
Sec: Herbert C. Fisher  
EXPLOR, TESTING

**MINERVA MINE**  
Whitehall  
Opr: Charles O. Weber  
MINE, Whitehall dist, Au, Ag,  
Cu, Pb, Zn

**MINNIE MINE**  
Opr: O. A. Krueger, Twin Bridges  
MINE, Norris & Norwegian dist,  
Madison Co, Au, Ag, Cu

**MIRACLE MINES, INC**  
Basin  
Incorprts: Alfred Hedval, Basin,  
W. W. Durnen, Cody, Wyo., & Paul  
Keller, Helena  
MERRY WIDOW, Basin, U

**MISSOULA-LINCOLN METALS CO**  
301 Montana Ave, Missoula  
DOLLAR, HALF DOLLAR &  
BLUEBIRD MINES, Lincoln dist,  
Lewis & Clark Co

**MITCHELL, C B**  
Helena  
PLACER LEASE, Helena, Au

**MITCHELL MNG CO**  
212 Union Block, Mt Vernon,  
Wash  
Pres & Gen Mgr: E. B. Olmstead  
VP: L. M. Peck  
Sec: Walter Hartwick  
Treas: A. C. Pelland  
MARGENT MINE, 2 mi N of Butte,  
shaft, Ag, Mn, Au, Zn, Pb  
Supt: Maurice Turner  
Geol & Engr: Roy Hammond

**MO, HANS**  
Rimini  
AUSTRALIAN MINE, Amazon dist,  
Jefferson Co, Ag, Pb, Zn, idle  
BUNKER HILL & SUNLIGHT MINES,  
Rimini dist, Lewis & Clark Co,  
Au, Ag, Cu, Pb, Zn, idle  
O. H. BASSETT, CLEMENETHA,  
COPPER DYKE & TUNNEL MINES,  
Rimini dist, Lewis & Clark Co,  
Au, Ag, Cu, Pb, Zn

**MONARCH MINE**  
Opr: D. L. "Casey" Jones, Elliston  
MINE, Dunkleberg dist, Granite Co,  
Ag, Pb, Zn

**MONIOWA MINING CO**  
Incorprts: George Sutherland,  
F. E. Buck & W. T. Boone, Missoula  
Under devel

**MONTANA CLAY, INC**  
Townsend  
MINE, Townsend, clay, gravel  
**MONTANA COBALT & SILVER CREST CO**  
Butte  
NEW SILVER CREST "A",  
Virginia City dist, Madison Co,  
Ag, Pb

**MONTANA COPPER KING CO, INC**  
Dixon  
Incorprts: J. E. & G. D. Hall &  
J. W. Warren

**MONTANA MNG & ENGR CO**  
Philipsburg  
Pres & Geol: F. S. Neal  
VP & Met: W. L. Gegenhart  
Sec: E. T. Irvine  
BAGDAD MINE, 29 mi NW of  
Philipsburg, underground, Au, U  
Under devel

**MONTANA PHOSPHATE PROD**  
Garrison  
Pres: R. B. Sheldy  
ANDERSON MINE, 11 mi NW of  
Garrison  
GRAVELEY & LUKE MINES, 9 mi  
NW of Avon, underground, phosphate  
rock  
Supt: F. E. Burnet  
Asst Supt: A. E. Langsten  
Foreman: C. R. McDonald  
Engr: C. Noon

**MONTANA RAINBOW MNG CO**  
Marysville  
Owner: W. R. Wade  
Gen Supt: John Brophy  
DRUMMOND MINE, undgrnd,  
Au, Ag

**MONTANA RESEARCH FND**  
Box 85, Basin  
Pres: Gov. Hauser  
SILVERSIDE & HELPER CLAIMS,  
Au, Ag, Pb, Zn  
Idle

**MONTE CRISTO MINE**  
Opr: George E. Hubbard, Divide  
MINE, Vipond dist, Beaverhead Co, Ag

**MOOSE TRAIL MINE**  
Oprs: Gene Marker & Wilbur Sanders  
Philipsburg  
MINE, Stony dist, Granite Co,  
Ag, Cu, Pb, Zn

**MOOSEHORN MNG CO**  
Divide  
MINE, Vipond dist, Beaverhead  
Co, Au, Ag, Cu, Pb

**MORNING GLORY MINE**  
Opr: J. K. Curless, Basin  
MINE, Cataract dist, Jefferson  
Co, Au, Ag, Cu, Pb, Zn

**MORROW, WILLIAM**  
Basin  
BLUEBIRD MINE, Galena Gulch,  
near Basin, Pb, Ag

**MT WASHINGTON MINE**  
Opr: Dan MacIntosh, Wickes  
MINE, Colorado dist, Jefferson Co

**MOUNTAIN CLIFF MINE**  
Opr: Fred Box, Pony  
MINE, Virginia City dist,  
Madison Co, Au, Ag, Pb, Zn

**MOUNTAIN FLOWER MINE**  
Oprs: R. H. & H. F. Rogers  
Virginia City  
MINE, Virginia City dist, Madison  
Co, Ag, Pb, Zn

**MOUNTAIN VIEW MINE**  
Whitehall  
Oprs: A. Burgoyne & L. Webber  
MINE, Whitehall dist, Jefferson  
Co, Ag, Pb, Zn

**MOUNTAIN VIEW MINE**  
Maxville  
Opr: Leon Heroux  
MINE, Boulder dist, Granite Co, Cu

**NADA MINE**  
Oprs: Dennis & Darrell Miller,  
Radersburg  
MINE, Cedar Plains dist,  
Broadwater Co, Au, Ag, Cu, Zn

**NANCY LEE MINES, INC**  
410 Main St, Kellogg, Idaho  
Gen Mgr: Frank Excheberger  
NANCY LEE GROUP, Superior,  
underground, Ag, Pb, Zn, Cu  
AMY, MATCHLESS & BOBBY  
ANDERSON GROUPS, Pine Creek

dist, Kellogg, undgrnd, Au, Ag, Cu,  
Pb, Zn  
Gen Supt: C. R. Ranney  
KING & QUEEN MINES  
123-TON FLOT MILL  
Supt: Jack Schroder

**NELLIE GRANT MINE**  
Opr: Woodrow Beaver, Helena  
MINE, Clancy & Lump Gulch dist,  
Jefferson Co, Ag, Pb, Zn

**NEVER SWEAT MINE**  
Oprs: Midtyling & Noon, Deer Lodge  
MINE, Your Name Cr dist, Powell  
Co, Au, Ag, Cu

**NEW LENSURE MNG CO**  
Missoula  
Incorprts: G. E. Minty, Jack  
Sheldon, F. E. Hobson, Missoula

**NEW NANCY HANKS MINES, INC**  
Garnet  
Pres: K. D. Butler  
VP: D. F. Brayton  
Sec-Treas: H. A. Bellows  
NANCY HANKS MINE, Granite Co

**NEWBERG BROS & SLOAN, INC**  
Basin  
EVA MAY MINE, Zn, Pb, Au, Ag

**NEW WORLD MINE**  
Opr: James T. Rouane, Columbus  
MINE, New World dist, Park Co,  
Au, Ag, Cu, Pb, Zn

**NINE MILE MINE**  
Opr: William Lamson, Stark  
MINE, Nine Mile dist, Missoula Co,  
Au, Ag

**NORTH BUTTE MNG CO**  
101 W. Granite St, Butte  
Pres: Joseph E. Parker  
VPs: I. E. Serigstad, R. L. Syek  
& T. W. Roche  
Gen Mgr: I. E. Serigstad  
Sec: John A. McCarthy  
GRANITE MT MINE, 1 mi N of  
Butte, underground, Cu, Zn, Pb,  
Au, Ag, idle  
LEACHING & PRECIP PL  
(Properties sold to Anaconda  
Copper Mng Co)

**NORTH STAR GROUP "A"**  
Opr: Roy E. Nichols, Radersburg  
MINES, Cedar Plains dist,  
Broadwater Co, Ag, Pb, Zn

**NORTHWEST GOLD CORP**  
Whitehall  
COLORADO MINE, 4 mi S of  
Whitehall, Renoza dist, Madison Co

**NORWICH MINE**  
43 Hiram Bldg, Butte  
Partners: E. G. Irving & R. H.  
Nelson  
MINE, underground, Mn, Ag  
Prod: 15 tons  
Under devel

**OCCIDENTAL MINE**  
Sheridan  
Opr: P. H. Peterson  
MINE, Sheridan dist, Madison  
Co, Ag, Cu, Pb, Zn

**OJA, DAVE**  
300 6th Ave S, Great Falls  
MARY LUCILLE #1, 2, 3, White Hawk  
underground  
Under devel

**OLD CHIEF MINE**  
Opr: Jas. Patton, Philipsburg  
MINE, Flint Cr dist, Granite  
Co, Ag, Pb, Zn

**OLIPHANT, CLARENCE**  
Butte  
CUMBERLAND MINE  
(Leased from Cumberland Mines,  
which see)

**ORO MINE**  
Opr: E. G. Philips, Troy  
MINE, Ruby Cr dist, Lincoln  
Co, Ag, Cu, Pb, Zn

**OZANNE MINE**  
Opr: L. James & C. Albano, Jems  
MINE, Dunkleberg dist, Granite  
Co, Au, Ag, Cu, Pb, Zn

**PASSOVER MINE**  
Oprs: Baird & Dawson, Boulder  
MINE, Elkhorn dist, Jefferson  
Co, Ag, Cu, Pb, Zn

**PERHAPS MINE**  
Whitehall  
Opr: Lester Lindquist  
MINE, Jefferson Co, Au, Ag, Zn, Pb



- PEURA, LOUIS**  
1124 6th Ave, Helena  
**GREGORY & MINNESOTA DUMP**  
MINES, Colo dist, Jefferson Co.,  
Au, Ag, Cu, Pb, Zn  
**HELENA & SILVER COIN MINES**  
Scratch Gravel dist, Lewis &  
Clark Co., Au, Ag, Cu, Pb, Zn  
**HOPE & FAITH MINES**, Montana  
City dist, Jefferson Co., Au, Ag, Cu,  
Pb, Zn  
**JULIA MINE**, Scratch Gravel dist,  
Lewis & Clark Co., Ag, Cu,  
Zn, idle  
**LIVERPOOL DUMP**, Clancy &  
Lump Gulch dist, Jefferson Co.,  
Ag, Cu, Pb, Zn, idle  
**PARK PEERLESS MINE**, Helena  
dist, Lewis & Clark Co., Au, Cu, idle  
**WHITLATCH MINE**, Helena dist,  
Lewis & Clark Co., Au, Ag, Cu  
**MORNING STAR MINE**, New World  
dist, Park Co., Au, Ag, Pb, Zn
- PHILIPS, WENDELL**  
Oprs: Mayer, Sandquist &  
Williams, Basin  
MINE, Cataract dist, Jefferson Co.,  
Ag, Pb, Zn
- PLAINVIEW MINE**  
Oprs: Earl Richards &  
G. Turney, Twin Bridges  
MINE, Rochester dist, Madison  
Co., Ag, Pb, Zn
- PHOSPHATE & MIN DEVEL.**  
Maxville  
Owners: Muri, Johnson & Ingersoll  
MINE, near Maxville, Granite Co.
- POTRATZ, G. G.**  
Box 366, Avon  
**CYCLONE MINE**, 12 mi N of  
Avon, underground  
idle
- PRINCETON MNG CO**  
Maxville  
MINES, Boulder & S Boulder  
dist, Granite Co., Ag, Cu, Pb, Zn  
idle
- RABBIT MINE**  
Opr: Norman Rogers, Helena  
MINE, Summit Valley dist,  
Silver Bow Co., Cu
- RADON SUPPLY CO**  
Butte  
Incorprts: S Johnson & Leta  
Drury, Butte, & Nellie  
Hughes, Boulder  
MINE, near Basin, U
- RAMSEY & STEEL**  
Dillon  
H & S MINE, Beaverhead Co., Pb
- RAY, CHARLES**  
Opr: Henry Page, Alder  
MINE, Virginia City dist, Madison  
Co., Ag, Cu, Pb, Zn
- RED CHIEF MINE**  
Norris  
Opr: Chas White  
MINE, Norris & Norwegian dist,  
Madison Co., Ag, Cu
- REED, JIM**  
Twin Bridges  
**SHOEMAKER GROUP**, 9 mi N of  
Twin Bridges, undergrd, Au, Pb  
**LEODORE & THISTLE MINES**,  
Rochester dist, Madison Co.,  
Ag, Cu, Pb, Zn
- RENZ, HARRY**  
33 N Rife St, Dillon  
**PINE TREE MINE**, Au, Ag  
idle
- REVENUE MINES DEVEL.**  
CO  
Norris  
Pres & Mgr: R E Emry  
VP: A H Emry  
Sec-Treas: A M Welles  
**REVENUE GROUP**, 7 mi SW of  
Norris, Au  
idle
- RIEBHOFF, MARVIN**  
Whitehall  
**GOLDEN SUNLIGHT**, Jefferson  
Co., Au, Ag
- RIMROCK MINE**  
Opr: Frederick Holst, Helena  
MINE, Bannock dist, Beaverhead  
Co., Pb, Zn
- RISEING STAR MINE**  
Opr: F C McNulty, Butte  
MINE, Summit Valley dist,  
Silver Bow Co., Ag, Pb, Zn
- ROCK CREEK TUNGSTEN**  
CO  
Missoula  
Incorprts: J P Smith, Owen  
Olmstead, H G Anderson, R T  
Sligner, Missoula, & Ed  
Schrieber, St John, Wash
- ROYAL MINE**  
Opr: E C Lucier, Drummond  
MINE, Dunkleberg dist, Granite  
Co., Ag, Pb, Zn  
idle
- RUBY GULCH MNG CO**  
Zortman  
VP: G Donaldson  
Sec-Treas: M W Engle  
Gen Mgr: E A Scholz  
**RUBY GULCH MINE**, surface,  
Au, Ag  
Mgr: F B Bryant  
Engr: Hans Schroeder  
300-TON CYAN PL.  
Supt: Max Klimper
- RUBY SILVER MINE**  
Oprs: Berg & Zimmerman,  
Townsend  
MINE, Cedar Plains dist,  
Broadwater Co., Ag, Cu, Pb, Zn
- S S & R MINE**  
Opr: Pete Sweeney, Dillon  
MINE, Medicine Lodge dist,  
Beaverhead Co., Ag, Pb, Zn
- ST PAUL MINE**  
Opr: Alvin Osborne, Kellogg, Ida  
MINE, Whitehall dist, Jefferson  
Co., Ag, Pb, Zn
- SABO-JOHNSON CO**  
c/o F I Sabo, Boreman  
Incorprts: F I Sabo, Boreman,  
J E Johnson, Sheridan, A E  
Peterson, Martinsdale, & H B  
Smith & N S Stotesbury, Billings
- SANTA ANITA MINE**  
Toscan  
Opr: Wayne Miller  
MINE, Cedar Plains dist,  
Broadwater Co., Ag, Pb, Zn
- SANTA RITA MNG CO**  
Missoula  
Incorprts: C B Hoskins,  
Bernert Fisher & E F Elstone
- SHAFER & RENZ**  
Argenta  
**LAST CHANCE MINE**, Argenta  
dist, underground, Au
- SIERRA TALC & CLAY CO**  
3509 Randolph St, Los Angeles,  
Calif  
Pres: Dorothy Dodds  
Gen Mgr: E W Stevens  
**YELLOWSTONE MINE**, Ennis, 52  
mi N of W Yellowstone, underground,  
tail
- SIGNAL MINING CO**  
Kellogg, Idaho  
Pres: R E Brown  
VP: G Noxon  
Sec-Treas: W R Brainerd  
**NEW YORK-MONTANA MINE**,  
Bannack, underground, Au  
Engr: Gunnar Johnson  
Under devel
- SILICA PRODUCTS CO**  
Elliston  
Pres: Walter Berkland  
Sec-Treas: H C Beck  
**PHOSPHATE MINE**  
**NEGROS MINE**, Pb, Zn
- SILVER BAR MINE**  
Opr: H A Shute, Butte  
MINE, Sheridan dist, Madison  
Co., Ag, Pb, Zn
- SILVER BILL MINE**  
Opr: Wm Hagman, Boulder  
MINE, Amazon dist, Jefferson  
Co., Ag, Cu, Pb, Zn
- SILVER BULLION MINES CO**  
White Sulphur Springs  
MINE, Meagher Co., Ag
- SILVER DYKE MINE**  
Opr: Paul Vdovec, Neihart  
MINE, Montana dist, Cascade Co.,  
Ag, Cu, Pb, Zn
- SILVER HILL MINE**  
Opr: John Guilo, Basin  
MINE, Cataract dist, Jefferson  
Co., Ag, Cu, Pb, Zn
- SILVER KING MINE**  
Opr: Laurence Leechner, Dillon  
MINE, Polaris dist, Beaverhead  
Co., Ag, Pb, Zn
- SNOWFLAKE MINE**  
Opr: Wm L Russell, Helmville  
MINE, Big Blackfoot dist, Powell  
Co., Au, Pb, Zn
- SOLUBLE PHOSPHATES,**  
LTD  
Box 8, Maxville  
Pres: Lee H Skeels  
**PHOSPHATE MINE**, Maxville  
50-TON MILL
- SPAULDING MINES, INC**  
Poplar  
Pres: B W Andresen  
VP: Lorentz Holm  
Sec-Treas: Thelma Andresen  
MINE, Poplar, placer  
Under devel
- STAR MINE & MILL**  
Neihart  
Gen Mgr: L B Stark  
**STAR & GALT MINES**, N of Neihart,  
underground, Ag, Pb, Zn  
60-TON FLOT MILL
- STUMP MINE**  
Opr: Vincent Mus, Cooke  
MINE, New World dist, Park Co.,  
Ag, Pb, Zn
- SUMMIT MINE**  
Opr: Ed C Hughes, Drummond  
MINE, Dunkleberg dist, Granite  
Co., Ag, Pb, Zn
- SUNLIGHT MNG CO**  
Maxville  
MINE, Granite Co., phosphate  
rock
- SUNRISE MINE**  
Opr: Glen Howe, Drummond  
MINE, First Chance dist,  
Granite Co., Au, Ag, Cu
- SUNRISE MINES, INC**  
Basin  
Pres: J Kogolsnak  
Gen Mgr: A C Ballensky  
**EUREKA CLAIM**, Basin, Au
- SURPRISE MINE**  
Opr: Arthur Kloos, Whitehall  
MINE, Sheridan dist, Madison  
Co., Ag, Pb, Zn
- SWANSEA MINES, INC**  
Box 904, Helena  
Pres & Gen Mgr: C L Hewitt  
**SILVER BELL MINE**, 40 mi NW  
of Helena, underground, Au, Ag,  
Cu, Pb  
Supt: Oscar Fullner  
Under devel
- SWEENEY & ASSOCIATES**  
Superior  
**LITTLE ANACONDA MINE**,  
Mineral Co., Ag, Pb, Zn, Cu  
idle
- SYLVAN GOLD MINES, INC**  
Basin  
Drs: P V Phipps, H Phipps,  
A J Cavers, O A Bittrick, H O  
Bittrick  
**FREEBURG GROUP**, Jefferson Co.,  
Au, Ag, Cu, Pb
- SYLVIA MINES**  
(A Partnership)  
Box 321, Dillon  
Mgr & Purch Agr: G M Fleming  
**SYLVIA MINE** at Argenta, undergrd,  
Au, Ag, Pb  
Mine Supt: R M Fleming  
Prod: 2 tons
- TAYLOR-KNAPP CO**  
Box FF, Philipsburg  
Pres: S R Knapp  
VP & Gen Mgr: A V Taylor, Jr  
VP: Alf C Kremer  
Mgr: Donald S Johnson  
Ch Engr: Charles P Knaebel  
**MOORLIGHT GROUP**, Philipsburg,  
underground, Mn, Ag, Zn  
Mine Foreman: C H Reistad  
Mill Foreman: G Kneale  
Assay: F S Neal  
100-TON GRAV-MAG MILL
- TIGER MINE**  
Opr: Croff & Montague, Monarch  
MINE, Barker dist, Judith Basin  
Co., Ag, Cu, Pb, Zn
- TRADER HORN MNG CO**  
Dillon  
MINE, Virginia City dist, Madison  
Co., Ag, Pb, Zn
- TREASURE STATE MINE**  
Opr: Wm Hagman, Boulder  
MINE, Amazon dist, Jefferson  
Co., Ag, Pb, Zn
- TRIANGLE GYPSUM CORP**  
Judith Basin & Judith Co  
Partners: J A Chambers, Ed  
Chambers, and G B Boush
- TRI METALS, INC**  
Box 403, Philipsburg  
Pres: Lester N Harkness  
Sec-Treas: Frank J Harkness  
**NORTH GRANITE MINE**, R. C.
- TRI-STATE MINERALS CO**  
2001 Lincoln, Idaho  
Owner: W E Sams  
Gen Mgr: John Phipps  
**SMITH-DILLON MINE**, R. C.  
Dillon, surface, Au  
Mine Supt: Ernie Nye  
50-TON AIB FLOT MILL, Ag  
Mill Supt: Tom Bowman
- TUNGSTEN MINERALS, INC**  
Dillon  
Incorprts: Allan Haines, R P  
Fleming & A L & C H Harkness
- TUSCARORA MINE**  
Opr: Rudy Nygren, Dillon  
MINE, Argenta dist, Jefferson  
Co., Ag, Pb, Zn
- TURNER, RUFUS**  
Basin  
**GREY LEAD MINE**, near Basin,  
underground, Au, Ag, Cu  
25-TON GRAV MILL  
idle
- UNITED MINES CO**  
Box 917, Butte  
Pres: L B Dickason  
VP: N Z Walker  
Gen Mgr: Melvin Matthes  
Asst Gen Mgr: C Owen Smith  
Sect: W C Walker  
Geol: Charles M Matthes  
**TROUMALINE & 36 OTHER MINE**  
15 mi NE of Boulder, 400' A. G.  
Under devel
- U S GOLD CORP**  
405 Cedar St, Seattle, Wash  
VP & Gen Mgr: A F Clark  
MINE, 12 mi NE of Twin Bridges  
Madison Co., under devel  
B & H MINE, Tidal Wave dist,  
Madison Co., Au, Ag, Cu, Pb
- U S GRANT MINING CO**  
Virginia City  
Pres & Gen Mgr: Walter H Smith  
VP: William G Schmitt  
**U S GRANT, ALAMIDA, BANNACK,**  
**CHIEF & EASTON PATR WARE**  
Virginia City, underground, Au, Ag,  
Cu, Pb  
Mine Supt: Ann K Harkness  
Prod: 12,000 tons per year  
**EL FLEDA MINE**  
Prod: 60 tons  
MILL, under devel
- U S GYPSUM CO**  
Heath  
**UNDERGROUND GYPSUM MINE**  
Prod: 350 tons  
(See Calif, Colo, Nev, 10000  
Utah, Wash, Lake Superior,  
Central, South & East)
- U S MINING CORP**  
Neihart  
**BROADWATER & MOUNTAIN MINE**,  
Montana dist, Cascade Co., Ag, Pb, Zn
- U S STEEL CO**  
Darius  
**CRYSTAL MT MINE**, Co. 2  
(See Utah, Lake Superior,  
South & East)
- VERMICULITE CO OF**  
AMERICA  
406 Thorpe Bldg  
Minneapolis, Minn  
Pres: Stanley Gray  
MINE near Hamilton, vermiculite
- VICTOR CHEMICAL WORKS**  
Supt, Mont Oper: C G Throck  
Prod Supt: C Henderson  
Supt, Mng Oper: Henry Johnson  
MINE, Maiden Rock, underground,  
phosphate rock  
**ELEMENTAL PHOSPHORUS PL.**  
Silver Bow, electric furnace
- VICTORIA MINES, INC**  
Box 247, Sheridan  
Pres: John T Potts

**AMERICAN PIT MINE**, 2 mi W of Silver Star, Pb, Zn, Au, Ag  
**TOLEDO-BUCKEYE GROUP**, Sheridan dist., Madison Co., Ag, Cu, Pb, Zn  
 30-TON FLOT MILL  
 Mill Supt: Walter Giebel

**WASHINGTON MINE**  
 Oper: Grant W Berggren  
 Hamilton  
 MINE, Overwicht dist., Ravalli Co., Au

**WEST MAYFLOWER MNG CO**  
 304 S Main St, Butte  
 Pres: F A Linforth  
 VP: A C Hagley  
 Sec-Treas: R B Frazer  
**WEST MAYFLOWER MINE**, 11 mi SE of Wheatland, underground, Au, Ag

**WEST MONTANA EXPLOR & DEVEL CO**  
 412 Western Bank Bldg, Missoula  
 Pres & Gen Mgr: Ray W Key  
 VP: O J Durand  
 Sec: R A McGrew  
**DURAND LEAD & ZINC MINE**, 10 1/2 mi SE of Hall, underground, Zn, Pb, Cu, Ag, Au  
 Mill Engr: F A Hancock  
**SHAMROCK MINE**, 10 1/2 mi SE of Hall, Granite Co  
 WASA MINE, under devel

**WHITE PINE LEAD CO**  
 Helena  
**WHITE PINE MINE**, Warm Springs dist., Jefferson Co., Ag, Pb, Zn

**WILLIAMS, OTIS & CO**  
 Box 124, Helena  
**POORMAN & McLELLAN CR MINES**, dragline-dredge, placer, Au, Ag

**WILLIAMS PHOSPHATE CORP**  
 Casey Camp  
 Pres: Griff Williams  
**MINE**, 20 mi S of Alder, Madison Co., phosphate  
 Under devel

**WRIGHT MINE**  
 Monarch  
 Oper: Thorson & Brazee  
**MINE**, Barker dist., Zn, Pb, Ag, Cu

**WYOMING-MONTANA MNG & ENGR CO**  
 Powell, Wyoming  
 Pres: Sam Egbert  
 VP: William Mauch  
 Sec: Merle Burnhart  
**BILLY BENNETT MINE**, Sheridan, 8 mi N of Sheridan, underground, Pb, Ag, Au, under devel  
 Mine Foreman: Jack Oldham  
**LATEST OUT MINE**, 6 mi E of Sheridan, underground, Au, Ag, Pb, Cu

**YOB, JUANITA & PARRY**  
 Phillipsburg  
**GRANITE & BI-METALLIC MINES**, 4 mi SW of Phillipsburg, underground, Ag, Zn, Pb, Au, Mn  
 200-TON FLOT MILL

**YOGO MINING CORP**  
 Lewistown  
**PLACER**, Yogo Canyon, sapphires  
 Under devel

## NEVADA

**ADAYEN MNG CORP, LESSEE**  
 Box 278, Fernley  
**WHITE BLOWOUT MINE**, Washoe Co

**ADDOOR, GEORGE T & VON PETERSON MNG CO**  
 Box 311, Ruth  
**ELK LODGE**, Robinson dist., Zn, Pb, Au, Ag, Cu  
**PETERAN GROUP MINE**, Ag, Pb, Zn  
 (Leased from Kennecott Copper Corp)

**AFFRANCHINO, ERNEST**  
 Box 101, Eureka  
**REX MINE**, Diamond dist., 18 mi NE of Eureka, Pb, Ag, idle  
 Prod: 100 tons

**JEFFERSON & STAR OF THE WEST MINES**, on Ruby Hill, 2 mi W of Eureka, shale & quartzite, idle  
**NEW RUBY BELL**, 4 mi S of Eureka, Ag, Pb, Au  
 Prod: 1 ton  
**IRISH AMBASSADOR & BROMIDE MINES**, 10 mi S of Eureka, underground, Ag, Pb, Au  
**STIBNITE MINE**, 7 mi S of Eureka, underground, Sb, Ag, Pb

**ALA, J F & L DAZ**  
 Box 55, Montello  
**DELNO LODGE**, Delano dist., Pb, Ag, Cu, Au, Zn

**AMERICAN ORE CO**  
 Box 378, Lovelock  
**AMERICAN IRON ORE MINE**, Pershing Co

**ANACONDA COPPER MINING CO**  
 Box 1000, Yerington  
 Gen Mgr: A E Millar  
 Bus Mgr: J P Hagerty  
 Purch Agt: R K Owen  
 Pers Dir: K H Humphreys  
**YERINGTON MINE**, surface, Cu  
 Mine Supt: H R Burch  
 Gen Mine Foreman & Ch Engr: C J Houck  
**11,000-TON LEACH & PRECIP PL**, under construction  
 Pl Supt: A J Gould  
 (See Calif, Mont, Ida, Utah & East)

**ARGENTA CONS MNG CO**  
 Box 7, Goodsprings  
**ARGENTA MINE**, 3 mi S of Goodsprings, underground & surface, Zn, Pb  
 Mine Supt: Otto F Schwartz  
**70-TON FLOT-CONCENTR MILL**, idle  
 (See Calif)

**ARGENTUM MNG CO OF NEV**  
 c/o E S Gates, President  
 Box 134, Mina  
**NORTHERN BELLE LODGE**, Candelari dist., Ag, Au, Pb, Cu

**ARISTA GOLD MNG CO**  
 Beatty  
 Mgr: W H Callicott  
**ARISTA MINE**, 10 mi S of Beatty, underground, Au, W  
 Under devel

**ARMSTRONG, A R**  
 Glendale  
**GRAND GULCH MINE**, Clark Co., Ag, Cu

**ATLAS GOLD MNG CO**  
 c/o R H Carpenter  
**25 Mines Park**, Golden, Colo  
**EDGEMONT LODGE**, Centennial dist., Au, Ag, Pb, Cu

**AUSTIN, JESSE**  
 Junco  
**NORTH STAR (JUNCO STAR) LODGE**, Antelope dist., Au, Ag, Pb, Zn, Cu

**AUSTIN-JUMBO MINES, INC**  
 501 S State, Salt Lake City, Utah  
**AUSTIN-JUMBO MINE**, 45 mi NW of Winnemucca, surface, Au  
 Idle

**AUSTIN SYN PROPERTY**  
 Austin  
**MINE**, 4 mi N of Austin, Au, Ag  
 Mgr: M B Mosliker  
 (Leased to O J Fundon)

**AVED, E**  
 Baker  
**PAYSTREAK MINE**, Ocala dist., placer  
 Under devel

**BALDIN, HUGH M**  
 Box 1232, Eureka  
**BALDIN MINE**, Eureka Co., Pb, Ag, Zn  
 Idle

**BALDWIN, MERLE**  
 Box 1003, Eureka  
**BALDWIN LODGE**, Antelope dist., Zn, Pb, Au, Ag, Cu

**BALTIMORE CAMAS MINES, INC**  
 Box 418, Ely  
 Pres: G P Williams  
 VP: C E Carver  
 Sec: E P McDonald  
 Gen Mgr: Lauren Smith  
 Met: George Bush  
 Geol: S L Bida  
**SCHAEFER, TICUP MINES**, Cherry Cr, 50 mi N of Ely, underground, W  
 Prod: 85-100 tons  
 Mine Supt: Blaine Steele  
 Mine Engr: D E Anderson  
**100-TON FLOT-GRAV MILL**,

magnetic separation  
 Mill Supt: George Bush  
 Mill Foreman: LaValle Davis  
 (See Idaho)

**BARIUM PRODUCTS, LTD**  
 A SUBSID OF FOOD MACH & CHEM CORP  
 Battle Mountain  
 Gen Mgr: G M Stark  
**MT SPRINGS MINE**, 22 mi S of Battle Mt, surface, barite  
 Prod: 150 tons  
 Mine Supt: James Jury  
 (See Barium Products, Calif, Intermountain Chem, Wyo; Food Mach & Chem, East)

**BARNDT, V J**  
 Tybo via Tonopah  
**RESCUE LODGE**, Tybo dist., Pb, Au, Ag, Cu, Zn  
 Assessment only

**BARYTE NO 1 MINE**  
 Box 287, Battle Mountain  
**MINE**, 16 mi from Battle Mt, surface, baryte  
 Mgr: Andrew J Shelton

**BASIC REFRACTORIES, INC**  
 Gabbs  
 Mgr, Oper: M Muller  
 Works Mgr: H P Willard  
 Purch Agt: M L McConnell  
**GABBS MINE**, surface, magnesite, brucite  
 Mine Supt: A M Dixon  
**MILL**  
 Mill Supt: F W Menzl  
 (See Central)

**BATTLE CREEK TUNGSTEN**  
 Ruby Valley  
 Pres: N W Bowring  
**TUNGSTEN MINE**, surface, under devel  
**20-TON GRAV CONC**

**BAY, J L & R A TEN VOORD**  
 Eureka  
**JUNIPER LODGE**, Union dist., Pb, Ag, Zn

**BAY STATE MINES**  
 Kimberly  
 Lessees: A R Laird & J T Stinnett  
**MINE**, 20 mi E of Eureka, underground, scheelite  
 Prod: 20 tons

**BELLAND, MARTIN & BAKER**  
 Baker  
**PALLINE CLAIM**, White Pine Co., Ag, Pb, Zn

**BELMONT MINE & MILL CO**  
 c/o D A Jennings, Box 442, Ely  
**BELMONT MINE**, 54 mi SE of Ely, underground, Pb, Ag  
 Under devel

**BENNETT, S A**  
 Box 391, Winnemucca  
**SAM CARLEY LODGE**, Sierra dist., Pb, Au, Cu, Zn

**BENSON BROS**  
 c/o Walter Benson, Ely  
**GOLDEN RULE MINE**, White Pine Co., Au, Ag, Pb  
 Idle

**BEOWAWE BERIUM PROD ASSN**  
 Beowawe  
 Pres: Carl Hannaman  
 VP: Joe Thomas  
 Sec: C F Stone  
 Gen Mgr: Dick Edgar  
 Asst Gen Mgr: Gene Harris  
 Met: Lee Lakin  
 Mech Engr: L L Mauldin  
 Purch Agt: C F Stone  
**FIVE FITS**, 23 mi S of Beowawe, surface, crude barite

**BIEROTH & BRUMMELL**  
 Mountain City  
**RIO TINTO DUMP**, Mt City (Cope) dist., Cu, Ag

**BIG CASINO MINE**  
 Searchlight  
 Lessees: Hugo Strange, Walter Thing, J R Hughes, & A G Cowden  
**MINE**, Searchlight dist., lode, Pb, Cu, Ag, Au

**BIG CREEK MNG & MLG CO**  
 Austin  
 Pres: Ernie W Thompson  
 Sec: Mary Talor  
**ANTIMONY MINE**, 18 mi SW of Austin, underground, Sb, Au, Ag  
 idle  
**50-TON FLOT MILL**

**BIG DICK MINE**  
 Box 155, Boulder City  
**MINE**, Ag, Cu, Pb, Zn  
 Oper: F B Wheelwright

**BIG THREE MNG CO**  
 c/o R W DeLaMare & K D Thomas  
 Silver City  
**SPRING VALLEY LODGE**, Silver City dist., Au, Ag

**BLACK DIAMOND MINE**  
 Owner: Charleston Hill Nat'l Mines  
 Contractor: Harry Raynor  
**MINE**, Humboldt Co., Mn

**BLACK METAL MNG CO**  
 Pioche  
**BLACK METAL LODGE**, Jack Rabbit dist., Pb, Zn, Ag, Cu, Au

**BLACK PRINCE MNG CO**  
 Pioche  
 Pres: Mrs C B Wheeler  
 Sec-Treas: E J Deek  
**MINE**, Pioche, Mn, Au, Ag  
 (Leased to Camet Metals Refract)

**BLACK ROCK DESERT MNG CO**  
 821 Market St, San Francisco, Calif  
**MINE**, Sulphur, 58 mi W of Winnemucca  
**400-TON MILL**, crushing & screening

**BLACK ROCK MANGANESE CO**  
 Eiko  
**MINE**, 31 mi SE of Battle Mt, underground & surface, Mn  
 Prod: 100 tons  
 Mine Foreman: Ervin Walters

**BLACK ROCK MNG CORP**  
 Tempe  
 Gen Supt: J C Perkins  
**LINCOLN MINE**, 93 mi W of Caliente, underground, surface, W, scheelite, Zn, Mn, pyrite, fluorite, Cd, Bi  
**750-TON FLOT MILL**, Tempe  
 Mill Supt: E B Loxman  
 Asst Mill Supt: R Wigglesworth  
 (See Calif)

**BLUE DIAMOND CORP**  
 1650 S Alameda St, Los Angeles, Calif  
 Pres: N J Redmond  
 VP: W G Bradley  
 Ch Chem: John Herbert  
 Pl Engr: R S White  
 Safety Engr: C W Thompson  
 Purch Agt: B M Martz  
**BLUE DIAMOND MINE**, Blue Diamond, 25 mi SW of Las Vegas, underground, gypsum  
 Prod: 900 tons  
 Mine Supt: M C Brooks  
 Asst Mine Supt: Joe Cain  
**850-TON MILL & PLANT**  
 Mill Supt: J P Dempsey  
 Wes Mgr: H L Waldhausen, Jr

**BLUE STAR MINES, LTD**  
 Box 781, Big Pine, Calif  
 Pres & Gen Mgr: John Spindler  
 Sec-Treas: F G Spindler  
**REED TALC MINE**, 20 mi W of Lida, underground, talc  
 Gen Supt: C V Harris  
 Foreman: E S Calson  
**ZURICH MILL**, Zurich  
 Foreman: Jesse Hildebrand  
 Prod: 75 tons

**BONANZA HILL MINES**  
 Goodsprings  
 Partners: Kennedy & Woodward  
**ROOT ZINC MINE**, Goodsprings, Ag, Pb, Zn

**BOOKMAN, J B**  
 Mason  
**MASON VALLEY LODGE**, Yerington dist., Cu, Ag, Au, Pb, Zn

**BOX CANYON PLACERS**  
 c/o Thomas J Janey  
 Battle Mountain  
**ALEXANDER GROUP**, Battle Mt Nev dist., placer, Au, Ag

**BOWLER, WALTER**  
 Box 1081, Tonopah  
**FLORENCE LODGE**, San Antonio dist., Ag, Au, Cu, Pb

**BOYCE BROS**  
 Eiko  
**ECHO CANYON MINE**, Eiko Co., Ag, Pb

**BRADLEY, ROSE**  
 Box 111, East Ely  
**ORPHINE GROUP LODGE**, White Pine dist., Au, Ag

**BRADSHAW, MARK G**  
 Box 311, Tonopah  
**WAR EAGLE MINE**, Manhattan, underground, Au, under devel  
**100-TON CYAN MILL**  
**KEYSTONE GROUP**, lode, Manhattan dist., Au, Ag, idle

BRENNAN, J I  
Box 1407, McGill  
PROVIDENCE LOOE, Duck Cr dist,  
Ph, Ag, Zn

BRISTOL SILVER MINES CO  
218 Fell Bldg, Salt Lake City, Utah  
Pres: G W Snyder  
VP: E H Snyder  
Sec-Treas: C M Christensen  
Purch Agr: E G Back  
MINE, Bristol City, 25 mi N of  
Pioche, underground, Ph, Cu, Zn, Ag,  
Sn, As  
Gen Mgr: J H Buehler  
Supt: D E Hyde

BROKEN HILLS MNG & MLG  
Box 294, Babbitt  
MINE, Churchill Co, Ag, Ag, Cu, Ph, Zn  
Idle

BROWNSON & IVORY  
Box 323, Battle Mountain  
TRINITY LOOE, Battle Mt dist,  
Zn, Ph, Ag, Au

BRUHI ENTERPRISES  
c/o R H Hines, Box 583, Tonopah  
SANGER, McNAMARA, COVOTE,  
GEN THOMAS TLOS, Silver Peak dist,  
Ag, Ph, Au, Cu  
NEW YORK-EVA LOOE, Montezuma  
dist, Ag, Ph, Au, Cu

BRUNSWICK TUNGSTEN MINE  
c/o R L Hatten & Wm Squares  
Box 838, Carson City  
MINE, Ormsby Co, W

BUFFALO VALLEY MINES CO  
c/o Robert M Strander, Valmy  
BUFFALO VALLEY LOOE, Buffalo  
Valley dist, Au, Ag

BULLOCK, FRANK  
34 S Grant St, Nidvale  
JACKSON LOOE, Toiyabe dist,  
Ph, Ag, Cu, Au

BURCH, L P & L D LASHBY  
Esquivite via Fallon  
GOLD LEDGE GROUP, Esquivite dist,  
Au, Ag  
Owner: Frank Schwilke Estate

BURGNER, DON  
Box 483, Bishop, Calif  
BLACK HORSE MINE, 40 mi SW of  
Tonopah, surface, W

BURRUS, T O  
1077 Haskell St, Reno  
SILVER BELL LOOE, Deshule dist,  
Cl, Ag, Au

BURT, C I, ESTATE  
2417 Pacific Ave, San Francisco 33,  
Calif  
ILLINOIS LOOE, Lodi dist, Ag, Au, Ph, Cu

BYRN'S BASIN MINES  
Tomball, Ar

C & C TUNGSTEN CORP  
243 University Terrace, Reno  
LINNA MINE, 22 mi E of Austin,  
Lander Co, W

CABANNE, EMILE &  
JIMMIE MORE  
Box 27, Sparks  
BABE LOOE, Au, Ag  
CABIN 42 LOOE, Au, Ag, idle  
MUTCHISON LOOE, Au, Ag, idle  
Glenhouse dist

CALDER, DR WALLACE  
Box 229, Lovelock  
WADLEY MINE, 15 mi SE of  
Mill City, placer & underground,  
dragline-dredge, Au, Ag  
Idle

CALLAHAN ZINC LEAD CO  
ELY VALLEY MINE, 1 mi E of  
Pioche  
250-TON FLOT

Gen Supt: L E Davis  
Supt: E Lowman  
Foreman: V W Washburn  
Idle  
(See Alaska, Calif, Nev & East)

CALTO, JOHN  
Imlay  
RIVERVIEW MINE, Pershing Co,  
Ar, Ag

CAMILL MINES, INC  
Box 347, Winnemucca  
CAMILL MINE, 50 mi N of  
Winnemucca, underground, Hg  
Prod: 10 tons  
Supt: R A Wharton  
CAMILL MILL, Gould rotary  
furnace

CAMPBELL, ALAN A  
Cherry Creek  
STAR LOOE, Cherry Cr dist, Au, Ag

CANDELARIA EXPLOR CO  
c/o T R W Francis Figg-Hoblyn  
Mina  
PETREL LOOE, Candelaria  
(Columbus) dist, Ag, Au, Cu, Zn, Pb

CANFIELD, SANSOM &  
COPPIN  
Lovelock  
GREEN LOOE, Wildhorse dist,  
Ag, Ph, Au

CARDINALLI & FRANK  
Box 33, Eureka  
EXTENSION MINE, 22 mi W  
of Eureka, underground, Zn, Pb

CARLSON, ED  
4570 Russell St, Holladay, Utah  
Co-owner: W W Jacobson,  
Goodsprings  
ANCHOR LOOE, Yellow Pine  
dist, Zn, Ph, Ag, Au, Cu

CARSON TUNGSTEN CO  
Box 2482, Reno  
CARSON MINE, Douglas Co, W

CASTLE MT MNG CO  
c/o J H Alleman,  
Box 1229, Salt Lake City, Utah  
Pres: R H Merrill  
VP: B F Robbins  
Sec-Treas: J H Alleman  
CASTLE MT MINE, Lander Co,  
underground, Ph, Ag, Zn, Au, Cu  
Under devel  
(Leased to FRH Mng Cos)

CAVE TUNNEL LEASE  
c/o A R Hider, Box 189,  
Battle Mountain  
IRON CANYON LOOE, Battle Mt  
dist, Ph, Zn, Ag, Cu, Au

CEDAR CHEST MINE  
Mina  
Owners: G A Peterson &  
John Dewar, Box 230, Mina  
Lessee: Kenneth Dutton, Mina  
MINE, 22 mi E of Mina, undergrd, W  
Prod: 5 tons

CENTRAL COMSTOCK  
MINES  
Box 337, Virginia City  
Mgr: H B Cressler  
CHOLLAR, POTOSI, SAVAGE &  
HALE NORCROSS GROUPS, Au, Ag  
125-TON CYAN MILL  
Idle

CHAMPION CITY MINES,  
INC  
314 W Superior St, Duluth, Minn  
Pres: Eric Kyrk  
Sec-Treas: M Kyrk  
LUCKY BOY MINE, Hawthorne,  
Alum dist, Ag, Ph, Zn  
250-TON FLOT PL

CHANCE MINE  
Cherry Creek  
MINE, underground, W  
(Leased to John Boudry)

CHARLESTON HILL NAT'L  
MINES CO  
239 E 3rd, Winnemucca  
Pres: Mrs Mary Clogh  
VP: C G Bralley  
Sec-Treas: L R Grant  
BLACK DIABLO MINE, Box 176,  
Golconda, 21 mi S of Golconda,  
underground, MnO<sub>2</sub>

CHERRY CREEK  
TUNGSTEN MNG  
Box 2, Cherry Creek  
Pres & Mgr: Kenneth Clegburn  
Sec-Treas: Willard Clegburn  
MINE, Cherry Creek, W  
50-TON FLOT MILL

CHICK BED CO  
Fernley  
CHICK BED MINE, 22 mi E of  
Fernley, surface, diamonaceous  
earth  
Supt: Lowell Smith

CHIMNEY MINES  
Box 316, Lovelock  
Owner: Elmo G Burgess  
CHIMNEY MINE, 35 mi NW of  
Lovelock, underground, under devel  
PHONOLITE MINE, 35 mi NW of  
Lovelock, underground, under devel  
5-TON CYAN MILL

CIMARRON MINE  
Tonopah  
Owner: E M Booth  
MINE, 15 mi NW of Tonopah,  
underground, Au, Ag  
Idle

CIRAC, CHARLES C  
Shilwater  
REVENUE MINE, 40 mi NE of  
Fallon, underground, fluorspar  
Idle

CITATION MNG CO  
c/o R W Prout  
1133 Buena Vista, Reno  
PAYMASTER LOOE, Peavine  
dist, Pb, Ag

CLAIR, DON H  
Box 626, Lone Pine  
SYLVANIA LOOE, Sylvania  
dist, Ph, Ag

CLARA MINE  
Box 716, Ely  
Owner: Korgan Piscovich  
MINE, Robinson dist

CLIFFORD, JOSEPH &  
SONS  
Box 648, Tonopah  
HORSESHOE LOOE, Oak  
Springs dist, Au, Ag  
TERRY-COUGAR (CLIFFORD)  
LOOE, Clifford dist, Ag, Au

COLUMBIA MINE  
Box 1288, Ely  
MINE, 1 mi E of Ruth,  
Robinson dist, underground &  
surface, Zn, Pb, Cu, Au, Ag, Mn

COMB GROUP LOOE MINES  
Goodsprings  
Ores: O F & Milton T Schwartz  
COMBINATION GROUP, Yellow  
Pine dist, lode, Pb, Zn, Ag, Au

COMBINED METALS  
REDUCTION CO,  
NEVADA OPERATIONS  
Pioche  
Mgr: Sam S Arentz  
Gen Mine Supt: Paul Gemmill  
Gen Mill Supt: W G Fidler  
Gen Mtn Supt: R G Lee  
Office Mgr: F H Anderson  
Pl Engr: L A West  
Mng Engr: R H Godde

CASELTON MINE, 3 mi W of  
Pioche, underground, Zn, Pb, Ag, Mn  
Prod: 1,000 tons  
Supt: R R Durk  
Foreman: John J Russell  
Asst Foreman: F L Heindenreich  
Mng Engr: Melvin Winsor  
COMET MINE, 20 mi W of Pioche,  
undergrd, Zn, Pb, Ag, W, under devel  
Supt: E S McIntyre  
Foreman: James Hulse

SOUTHPAN MINE, 20 mi W of Hiko,  
undergrd, Mn  
Prod: 20 tons  
Contractor: R D Wilkin  
LONE MOUNTAIN MINE, 20 mi W  
of Eureka, underground, Zn, Pb, under devel  
Supt: Louis Giblini  
MINERVA MINE, 75 mi N of Pioche,  
underground, WO<sub>3</sub>, under devel  
Supt: Robert Stopper  
1,900-TON CASELTON MILL, FLOT-  
RMS, Zn, Ph, Ag, Mn  
Mill Supt: C H Likens  
400-TON PANACALITE MILL,  
crushing & grinding, crude perlite  
Mill Foreman: H E Quick  
(See Utah)

COMMODORE MINE  
Mina  
Owners: Olsen, Gram & Tylor  
MINE, 27 mi from Mina

COMMODORE TUNGSTEN MINES  
Mgr: Gordon Smith, Gabos  
NEW YEAR MINE, Nye Co, W

CONCHER, LOUIS JR  
Mountain City  
NEVER SWEAT MINE, Gold Basin  
dist, lode, Ag, Ph, Zn, Au

CONQUEST MINE  
c/o Gale Peet, Austin  
MINE, 20 mi E of Austin, under-  
ground, W  
Foreman: W E Hanlon

CONRAD, R M  
Box 82, Gabos  
CHARLOTTE COOPER & BEACON  
CLAIMS, 3 mi S of Gabos, surface, W

CONS COPPERMINES CORP  
Kumbier  
NEVADA OPERATIONS, surface,  
Cu, Au, Ag  
Ch Engr: H W Bishop  
Ch Ck: John Eaby  
Mkt Mch: Thomas Flimour  
Ch Elec: M N Shields  
Expl Supt: J F Sharp  
Ch Chem: L Mathis  
(See East)

CONSTANT, H AMIN  
Box 1607, Reno  
GALENA HILL MINE, Washoe Co, Ag, Au

CONSTANT MINE, WALSLEY  
Box 1607, Reno  
Pres & Gen Mgr: Thomas E. Egan  
VP: H C Howland  
Sec-Treas: Mark E. Egan  
MONKOTA MINE, 10 mi W of Battle  
Mountain, Sn, W, Hg, Ag, idle  
Supt: B J Constant  
GRAY MILL, 100 mi W of Battle  
GALENA HILL, Washoe Co, Ag, Au

COOLEY MINING CO  
Box 272, Austin  
Pres: A J Cooley  
THOMAS W MINE, 10 mi W of  
Battle, Au, Ag

COPPER BUTTE MNG CO, 150  
Box 6, Wabuska  
BUCKSKIN (COPPER BUTTE) MINE  
Buckskin dist, Au, Ag, idle  
Under devel

COPPER CANYON MNG CO  
Battle Mountain  
Pres: Arthur A. Hering  
VP & Gen Agr: R H Hering  
Ch of Bd: L E Hering  
Sec: S L Sherman  
COPPER CANYON MINE, 18 mi SE  
of Battle Mt, underground, Ph, Ag,  
Mng Engr: G T Brown  
350-TON FLOT MILL  
Mill Supt: Ralph Hering  
Assayer: Eric Sorenson  
Idle

COPPER KING CO  
Box 591, Carson  
COPPER KING MINE, 10 mi W  
of Carson, lode, Cu, Ag, Au

COPPER VALLEY MINE  
Box 1, W A DeArb, 917 2nd Ave,  
Salt Lake City, Utah  
MINE, 34 mi NE of Ely, underground, W

CONS EUREKA MNG CO  
Eureka  
Gen Mgr: Roger N. Galloway  
Gen Supt: Sherman B. H. Hering  
MINES, 2 mi from Eureka, under-  
ground, Au, Ph  
Under devel  
(See Utah)

CORDERO MINING CO  
131 University Ave, Fairbanks, Ak  
CORDERO MINE, Matanuska, 12 mi  
SW of McDermitt, underground, Hg  
Prod: 30 tons  
Gen Supt: Verne P Hise  
MINE Foreman: Kenneth Reed  
FURNACE at mine  
BLUE WOLF MINE, Lovelock,  
20 mi SW of Lovelock, W  
Ch Engr: Edward H Hager  
(See Calif & Oregon)

CORDES, SILAS  
924 Main St, Bishop, Calif  
BLUE JACKET MINE, Edgemont  
dist, lode, Ag, Au, Cu, Ph, Zn

CORNELIUS, LEE  
Mina  
Owners: Leland Cates & Richard  
JASPER MINE, Mono Co, Ag, Au

COULTER, W S  
Battle Mountain  
COPPER QUEEN MINE, Lander  
Co, Au, Cu  
DEAN MINE, Lander Co, Ag, Ph

CRAFTS & PETERSON  
Hickney, Utah  
LEAD KING MINE, White Pine Co,  
Ag, Ph, Zn  
Under devel

CRESCENT LEAD MNG CO  
Box 187, Searchlight  
MINE, Cu, Ph, Ag, Au

CROSS, DEANE L  
Carson City  
MARY ANN MINE, Nye Co, Ag, Au

CROWELL, J IRVING JR  
Box 98, Beatty  
MINE, 5 mi E of Beatty, underground, W  
Prod: 21-35 tons shipping grade

CURIEUX & BATEMAN  
Box 642, Tonopah  
Owners: Lena & Eleanor Bateman,  
Jennie A Cates  
THE CATLIN MINE, Austin, Esq  
50 mi SE of Tonopah, underground, Au, Ag  
Idle



**CUSHMAN, JAMES A**  
Silver City  
VALLEY FLOW GROUP, Silver City  
dist. lode, Au, Ag

**DAKIN, WED H**  
280 Hildreth Dr., Burlingame, Calif  
CERVANTE MINE, 23 mi E of  
Lovelock, underground, Sb  
Under devel

**DAVIS, DONALD**  
Box 131, Lovelock  
BLUE SKY MINE, Rochester dist,  
placer, Au, Ag

**DAVIS, RUSSELL E**  
Battle Mountain  
D & E PLACER, Lander Co., Au

**DAYTON DREDGING CO**  
Box 563, Carson City  
Owner: Mrs. Trieve Mirgon  
DAYTON DREDGE, Silver City  
dist. placer, Au, Ag

**DE LA MARE, RODNEY W**  
& G W  
Silver City  
RENEGADE MINE, Washoe Co.,  
Au, Ag, idle

**TUNGSTEN MINE**  
SILVER HILL, Comstock dist,  
lode, Au, Ag

**DE LAY, J M**  
Lovelock  
ALBURN MINE, Pershing Co., Au, Ag

**DE LONGCHAMPS, F J**  
Box 2244, Reno  
Owner: N. Nenzel  
TALAPOOSA MINE, 15 mi S of  
Fernley, Au, Ag, idle

**DE ROUSSE, LOUIS**  
Juna  
LONDON SILVER-LEAD MINE,  
Mineral Co.

**DESERT MILLING CO**  
Box 9, Searchlight  
Pres: W W Hartman  
VP: W F Ball, Jr  
Gen Mgr: C H Chandler  
Purch Agt: Frank Carter  
QUARTETTE & DUPLEX MINES,  
2 mi W of Searchlight, tailings &  
ore dump, Au, Ag  
100-TON CYAN MILL, Searchlight  
Mine & Mill Foreman: H D Chandler  
Idle

**DONNELL, CHARLIE**  
Box 53, Lovelock  
COLORADO PLACERS, 50 mi NW  
of Lovelock, Au, Ag  
DRY WASHING PL.  
Idle

**DONNELLY, L C**  
Sulphur  
SAWTOOTH PL MINE, Humboldt Co., Au

**DOUBLE CHECK PROD CO**  
Fanning  
DOUBLE CHECK MINE, Washoe  
Co., time mari

**DOUBLE KING MINES, INC**  
Silver City  
SILVER HILL MINE, Storey Co., Au, Ag  
DONOVAN MILL, Silver City  
100-TON CYAN AMAL PL, idle

**DRUMM, A D JR**  
Fallon  
MINE, Sb

**DUNLAP MINING CO**  
Box 128, Mina  
Owner: J C Jones, R G Lester &  
F E Clayton  
DUNLAP MINE, Silver Star dist,  
lode, Cu, Ag, Au

**DUNN, C G**  
Mountain City  
SILVER KING LODE, Gold Basin  
District dist, Zn, Au, Ag, Cu, Pb

**DURBIN, ROY**  
Fallon  
GOLD TRAIL EXT., Eastgate dist,  
lode, Pb, Ag, Cu, idle  
CHALK MT MINE, Fairview dist,  
lode, Ag, Pb, Au

**DUTCH FLAT MINES INC**  
Reno, Nevada  
Pres & Gen Mgr: T A Cowan  
VP: J B Haines  
MINES, 22 mi N of Winnemucca,  
underground & placer, Au, Hg, W

**EAGLE PICHER CO**  
Box 1869, Reno  
CELATOM MINE, Storey Co.,  
diatomaceous earth  
MILL  
(See Ariz., Central)

**EAGLE TUNGSTEN MINE**  
Luning  
MINE, 14 mi NE of Luning, Mineral Co

**EAST STANDARD MNG CO.**  
c/o Ernest Woolley,  
Hotel Utah, Salt Lake City, Utah  
MINE, 55 mi SW of Ely, White  
Pine Co., Pb, Ag  
Idle

**EKSTROM, JACK F**  
General Delivery, Hawthorne  
RICHMOND & MONTANA MINES,  
Danville dist, lode, Ag

**EL CAPITAN TUNGSTEN CO**  
Gabbs  
Mgr: Gordon Smith  
EL CAPITAN MINE, Nye County  
EL CAPITAN MILL

**ERRINGTON-THIEL MNG CO**  
Ruby Valley  
Partners: Mrs Alma T Errington &  
Oscar W Thiel  
ERRINGTON-THIEL & BIG MICA MINE,  
65 mi SW of Wells, underground &  
surface, ruby mica, beryl  
Under devel  
50-TON FLOT MILL  
HOLIDAY MINE, 50 mi S of Wells,  
underground & surface, Cu

**ELY GOLD MINING CO**  
Box 686, Ely  
Pres: W G Goodman  
Sec & Mgr: W J Walker  
JENNY A MINE, White Pine Co., Au, Ag  
Idle

**ELY VALLEY MINES, INC**  
Pioche  
Gen Mgr: John Janney  
Supt: Pat English  
ELY VALLEY & MENDHA MINES,  
Lincoln Co., underground, Pb, Ag, Au, Zn,  
Cu  
Under devel

**EMPIRE SILVER MINE**  
Box 223, Mina  
Owner: Warren W Overholser  
MINE, serpentine, talc, soapstone,  
Ag, Pb

**EPPERSON, AMOS**  
132 South 5th St, Salt Lake City,  
Utah  
SILVER BUTTE MINE, Mud Springs  
dist, lode, Pb, Ag  
SILVER BUTTE MILL  
Idle

**ERB, H M**  
Fallon  
SILVER JOE MINE, Holy Cross  
dist, lode, Ag, Cu, Pb

**EUREKA CORPORATION, LTD**  
29 King St., W. Rm 2810,  
Toronto, Ontario, Canada  
Pres: Thayer Lindsley  
VP & Gen Mgr: George W Mitchell  
Asst Gen Mgr: Vernon A Manz  
Geol: John K Brozo  
Purch Agt: Willis A DePaoli  
RICHMOND-EUREKA MINE, Ruby  
Hill, 2 mi W of Eureka, underground,  
Zn, Pb, Au, Ag  
Under devel  
Mine Supt: Edward A Meika

**EUREKA MINES, INC**  
Silver City  
COMO MINE, Lyon Co., Au, Ag  
Idle  
(Leased to Conway & Haddy)

**EVANS, O W**  
Jungo  
JUNGO MINE, Central dist, lode,  
Cu, Ag

**EVANS BROTHERS**

Virginia City  
BALD EAGLE MINE, Comato k  
dist, lode, Au, Ag

**F G MINING & MILLING CO**  
1450 Grinnell St, Reno  
Pres: H C Schwabrow  
DOWNEYVILLE MINE, Lodi  
(Mammoth) dist, lode, Pb, Au, Ag,  
Cu, Zn  
Idle

**FRH MINING COMPANY**  
Box 337, Austin  
CASTLE MOUNTAIN MINE, Reese  
River dist, lode, Ag, Au, Cu, Pb, Zn  
Under devel

**FARNSWORTH, FRED**  
Box 1173, Ely  
TIPPLE MINE, Robinson dist, lode,  
Au, Ag

**FINCH & McALLISTER**  
Gold Point  
MINE, 2 mi E of Gold Point, Au  
Under devel

**FIRST URANIUM CORP NEV**  
Imlay  
MAJUBA MINE & MILL, 22 mi N of  
Imlay, underground, Sn, Cu, Ag, Au  
Under devel

**FLETCHER MNG & MLG CORP**  
Box U, Manhattan  
Pres: R W Fletcher  
FLETCHER MINE, Au  
Idle

**FROST, CARL A**  
Box 148, Victorville  
FOURTH OF JULY GROUP, Nye Co.,  
Au, Ag

**GABBS EXPLORATION CO**  
Box 1, Gabbs  
Pres & Gen Mgr: Lee Dougan  
VP: Helen M Dougan  
Asst Gen Mgr: B W Vanvoorth  
VICTORY TUNGSTEN MINE, 8 mi N  
of Gabbs, underground, W  
Prod: 100 tons  
Under devel  
Mine Foreman: Robert Holmes  
100-TON GRAV-FLOT MILL  
Mill Supt: Allan Potash

**GALENA MINE**  
Baker  
Operator: W E Hanion  
MINE, White Cloud Dist, Ag, Pb

**GARDNER MINES**  
Box 413, Ely  
Gen Mgr: C A Gardner  
MINERAL FARM & MEHRIMAR GRPS,  
20 mi SE of Ely, underground, Au, Ag, Pb,  
Zn, Cu  
Prod: 15 tons  
Under devel  
Mine Foreman: B J Reese

**GARNET KING MINING CO**  
719 N Vine St, Los Angeles 38,  
California  
Partners: Wier Casady, Jr, J H  
Olsen, K M Fletcher, W H &  
Major E Allured  
Admin Mgr: Wier Casady, Jr  
GARNET KING MINE, Esmeralda Co.,  
40 mi W of Goldfield, surface,  
scheelite  
Prod: 100 tons  
Act Mine & Mill Supt: J H Olsen  
100-TON GRAV MILL, crushing & wet  
tables

**GARRISON, ROY E**  
Wadsworth  
MONARCH & TEXAS #3 CLAIMS,  
Washoe Co., Au, Ag, Cu

**GEORGE, THOMAS**  
Beowawe  
VIOLA MINE, 23 mi S of Beowawe,  
underground, Cu, Ag, Au

**GILLIAM, DALE R**  
Box 123, Montello  
RUBY QUEEN MINE, Tuscarora dist, lode,  
Ag, Au

**GETCHELL MINE, INC**  
Box 2520, Reno  
Pres: George Wingfield  
VP & Gen Mgr: N H Getchell  
Sec: T L Wilcox  
Gen Supt: Royce A Hardy  
Consul Engr: Roy A Hardy  
Assayer: Roy Nojima  
GETCHELL MINE, Red House, 45 mi  
NE of Winnemucca, underground & surface,  
scheelite  
Prod: 600-800 tons  
Mine Supt: William J Newman  
Asset Mine Supt: Elmer Snell  
1,500-TON FLOT MILL  
Mill Supt: Keith Kunze  
Asst Mill Supt: David Kinkel

**GIROUX, L D & R J**  
Box 105, Mina  
Supt: Matt Obert  
SAN MIGUEL MINES, MARIETTA  
MINES, 25 mi W of Mina, underground, Au,  
Ag  
Under devel

**GLIDDEN CO, DIV 34,**  
CALIF-NEV BARYTE MINES  
765 5th Ave, Oakland 1, Calif  
Pres: D P Joyce  
Gen Mgr: E L Ralston  
Purch Agt: A A Gibaut  
BARIUM KING MINE, Battle Mt,  
surface  
JUMBO MINE, Tonopah, surface,

barite  
Foreman: Roy McDowell

**GLORIA MINING CO**  
c/o Earl L Meyers, Goodsprings  
GLORIA MINE, Goodsprings  
(Yellow Pine) dist, lode, Pb, Ag, Cu, Zn

**GODWIN, TOM & BERT**  
Box 331, Lovelock  
BLUE SKY MINE, LIMERICK MINE,  
Pershing Co., Au, Ag

**GOLD CORP OF AMERICA**  
c/o P J Burfening, Box 2267, Reno  
HUNT GROUP (right) Jumbo dist,  
lode, Au, Ag

**GOLD METALS CONS MINES**  
Box 351, Tonopah  
MINE, Nye Co., Au, Ag  
Idle

**GOLD RANGE COPPER MINE**  
Box 170, Mina  
MINE, 9 mi SW of Mina, surface,  
Cu, Au, Ag  
Idle  
(Leased to Milton R Sutton)

**GOLD ZONE MINING CORP**  
200 Davis St, San Francisco, Calif  
FAY MINE, White Pine dist, lode,  
Ag, Pb, Cu, Au  
Expiration only

**GOLDEN CENTURY INDUS,**  
INC  
Box 391, Carlin  
COPPER KING MINE, 18 mi N of  
Carlin, underground, Cu  
Supt: Frank Dean  
CARICO LAKE MINE, Mn

**GOLDEN DAWN MNG & MLG CO**  
Searchlight  
Pres: H C Mills  
Mgr: G C Davis  
MORNINGSTAR MINES, Searchlight,  
underground, Au, Ag, Cu, Pb

**GOLDEN EMPIRE MNG CO**  
Searchlight  
Pres: J B Evans  
Purch Agt: Wendell Romine  
HERLAND MINE, Nelson, under-  
ground, Pb, Zn, Cu, Ag  
Foreman: J J Dietrich  
25-TON FLOT MILL, Nelson  
Idle

**GOLDEN ENSIGN MNG CO**  
Box 74, Mountain City  
GOLDEN ENSIGN MINE, 1 mi E of  
Mountain City, underground, Au, Ag,  
Pb, Mo, W  
Supt: D C Despain

**GOLDEN HORSESHOE MNG**  
CO, INC  
c/o Herbert F Larsen  
Box 273, Guerneville, Calif  
GOLDEN HORSESHOE MINE, Seven  
Troughs dists, lode, Au, Ag

**GOLDEN IRIS MNG CO**  
c/o George Jensen  
859 California Dr., Burlingame,  
Calif  
GOLDEN IRIS MINE, Cloverdale  
dist, lode, Au, Ag  
MILL

**GOLDFIELD CONS MINES CO**  
Box 2520, Reno  
Pres: George Wingfield  
VP & Gen Mgr: E A Julian  
Sec: G M Spreading  
(See Calif)

**GOLDFIELD DEEP MINES CO**  
OF NEV

(A subsidiary of Newmont Mng Corp)  
Box 539, Goldfield  
Pres: Martin Duffy  
Mgr: Don Hargrove  
Purch Agt: T S Pay  
WHITE ROCK, LAGUNA & FLORENCE  
MINES, Goldfield, underground, Au, Ag, Cu  
Supt: E B Taylor  
Engr: C C Chamberlain  
100-TON FLOT MILL  
Supt: W H Hsieh  
Assay: J Mering  
(See Newmont, Nev, Calif & East  
Empire Star, Calif, Colorado &  
Resurrection, Colo)

**GOLDFIELD DEVEL CO**  
Box 687, Goldfield  
Pres: F J Friday  
VP: George McKay  
Sec-Treas: N J Bartharsh  
Gen Mgr: W J Frank

**GOLD OF OPHIR PLACERS**  
340 Main St, Lovelock  
Pres: J J Chambers  
PLACER, 40 mi N of Lovelock,  
dragline dredge, Au, Ag  
Under devel

**GOMES, GEORGE A**  
490 Wesley Ave, Oakland  
GRANT MINE, Gold Run dist,  
lode, Ag, Pb, Au

**GOOD HOPE PLACERS, INC**  
Winnemucca  
THOMAS CANYON ZINC MINE,  
9 mi SE of Winnemucca, undgrnd, Zn  
Supt: Dave See  
Under devel

**GOUDY HATFIELD**  
P O Drawer M, Gabbs  
JACK POT MINE, 8 mi SE of  
Wellington, undgrnd, Pb, Zn,  
Ag, Au, Cu  
Idle

**GOURLEY, JAMES**  
Box 607, Winnemucca  
MINE, Humboldt Co, Au, Ag, Pb, Zn

**GRAHAM DEVEL CORP**  
1000 Lincoln Rd, Miami Beach, Fla  
Pres: C R Graham  
VP: J S Graham  
Sec-Treas: Arthur H Seiler  
Mgr: R E Margenau  
GOLDEN EAGLE & GILDED AGE  
MINES, Box 727, Ely, 40 mi SE of  
Ely, undgrnd, Au  
GOLD KING & BLACK HORSE MINES,  
54 mi SE of Ely, undgrnd, W, Au  
Supt: B E Rees  
25-TON MILL, Goody Station

**GRAND DEPOSIT MINING CO**  
409 Ness Bldg, Salt Lake City, Utah  
Pres: Paul C Lyon  
CANYON DEPOSIT MINE, 25 mi NE of  
McGill, undgrnd, Pb, Zn, Cu, Ag, Au  
Under devel  
Mine Supt: Paul C Lyon, Jr

**GRAND-LITE GOLD MNG CO**  
Box 337, Yerington  
STANMORE MINE, East Walker dist,  
lode, Au, Ag

**GREAT LAKES CARBON**  
CORP DICALITE DIV  
Basalt via Tonopah  
PLANT #3, surface, basalt  
Supt: C F Scholz  
(See Colo, Calif, New Mex,  
Ore & East)

**GREY EAGLE DEVEL**  
CO, INC  
Beowawe  
Pres & Gen Mgr: F G Risley  
VP & Supt: J P McGlynn  
Foreman: P O Liebel  
GREY EAGLE MINE, 35 mi from  
Beowawe, undgrnd, Ag, Au, Pb, Zn

**HALL, A Z**  
Box 115, Beatty  
CROWN POINT GLOBE MINE,  
Johnnie dist, lode, Au, Ag

**HALL, JOB**  
Box 333, Panaca  
SILVER KING MINE, Patterson  
dist, lode, Pb, Ag, Cu

**HAMILTON CONS MINES**  
CORP  
200 Davis St,  
San Francisco II, Calif  
ROCCO MINE, Homestake lode,  
White Pine dist, Pb, Ag, Cu, Zn  
Exploration only

**HAMILTON DEVEL CO**  
c/o J V Savelli, Ely  
MINE, near Ely, undgrnd, Ag  
Under devel

**HAMMOCK, CHARLES**  
Mina  
HARDSCRABBLE MINE, Silver  
Star dist, lode, Au, Ag

**HANCOCK IRON MINE**  
Lessee: Wells Cargo, Inc  
Box 265, Battle Mountain  
MINE, Lander Co

**HARRIS, D F, A F & D M**  
Box 846, Tonopah  
KLONDYKE MINE, Esmeralda Co,  
undgrnd, Pb, Ag, Au  
Idle

**HAZEN & HARRIS**  
Box 128, Carson City  
BLACK EAGLE MINE, near Valmy, Min

**HEDMAN, JOHN A**  
Box 313, Pioche  
KING MIDAS GROUP (Hedman)  
lode, Ag, Pb, Cu, Au  
ELY SPRINGS (Lone Mountain) dist

**HENEBERGH, JOHN**  
Box 132, Round Mt, U, Au, Ag  
Under devel

**HERSEY, H B**  
Box 332, Ely  
ANNA LEE MINE, Black Horse  
dist, lode, Ag, Au, Cu

**HESS, FRED**  
Virginia City  
PYRAMID MINE, Storey Co, Au, Ag

**HI-BAR CO**  
Box 90, Imlay  
Pres & Gen Mgr: B C Hoalst  
IRON CANYON MINE, placer, Au  
WILLOW CREEK MINE, 13 mi S  
of Mill City, surface, Au

**HOALST, BLAINE C**  
Box 123, Battle Mountain  
H & T MINE, Golconda dist,  
lode, Pb, Cu, Ag

**HOLSTEN, JOHN G**  
Goodsprings  
WHITE SPOT MINE, Clark Co, Ag, Pb

**HOOSIER CLAIM**  
Goodsprings  
Owner: W T Frazer  
MINE, Yellow Pine dist, Ag, Pb  
Idle

**HOUSE, DICK**  
Box 153, Ely  
MAMMOTH MINE, Patterson  
dist, lode, Pb, Ag, Zn

**HUDSON, ARTHUR**  
Box 11, Manhattan  
STRAY DOG MINE, Nye Co, Au, Ag  
10-TON MILL

**HUGHES, JOHN & SONS**  
Box 376, Porterville, Calif  
HUGHES GROUP MINES, Clark Co

**HUMBURG MINE**  
Wells  
Oprs: Parker & Bollschweiger  
MINE, Elko Co near Black Forest, Pb, Ag  
Under devel

**HUMMEL, FRED E**  
Jungo  
LAST CHANCE MINE, Humboldt Co, Au

**HUNLEY, C WILLIAM**  
Box 23, Lovelock  
SILVER STAR MINE, Star dist,  
lode, Pb, Ag, Au, Zn  
MILL

**HUTCHINSON MINE**  
Wadsworth  
Owner: Emile Cahanne  
MINE, White Horse dist, Au, Ag  
Idle

**HYDE, EMERSON J**  
Manhattan  
IONE MERCURY MINE, 3 mi W  
of Ione, underground, Hg, under devel  
BIG FOUR MINE, Manhattan dist,  
Au, Ag, under devel

**IMPERIAL OPERATING CO**  
583 Brighton, El Centro, Calif  
UNION LEAD (COMMONWEALTH)  
MINE, Galena dist, lode, Pb, Zn,  
Au, Ag, Cu

**INDUST MIN & CHEM CO**  
8th & Gilman Sts, Berkeley, Calif  
Pres & Gen Mgr: L R Moretti  
JL PITER MINE, 2 mi S of Weeks,  
surface, fullers earth  
Intermittent oper by contractor

**INTERSTATE OIL & DEVEL CO**  
Box 1186, Elko  
Pres: W A Hayes  
Sec: Lester B Walbridge  
VISTA & BOSS MINES, Lander Co,  
undgrnd, Ag, Pb, Zn  
LITTLE GEM MILL, 75-ton flot,  
Tenoa

**JACKSON MINE**  
Montello  
Opr: John F Ala  
MINE, Ag, Pb

**JACOBSON, J F**  
Box 54, Goodsprings  
BULLION MINE, Yellow Pine  
dist, lode, Pb, Zn, Ag, Cu, Au  
BELL MINE, lode, Pb, Ag, Cu, Au  
YELLOW PINE, lode, Zn, Pb, Ag,  
Cu, Au  
SULTAN MINE, lode, Zn, Pb, Ag,  
Cu, Au  
Yellow Pine dist

**JEPPERSON, E R**  
Box 24, Battle Mountain  
BENTLEY GROUP MINE, Battle  
Mt dist, lode, Pb, Ag, Cu, Au

**JENSEN, HAL**  
Box 267, E Ely  
GRAND PRIZE MINE, lode,

Pb, Cu, Zn, Ag, Au  
ONETHA MINE, lode, Pb, Cu,  
Ag, Au  
White Pine dist

**JOHNSON, GEORGE H**  
Box 558, Lovelock  
C & M CLAIM, Pershing Co, Au, Ag

**JOHNSON, LEO K**  
Box 43, Silver City  
BUCKEYE MINE, Silver City  
dist, lode, Au, Ag

**JOHNSON & HEIZER**  
Lovelock  
LOVELOCK ANTIMONY MINE, Sh  
Idle

**JOHNSON, WHINERY &**  
PENDERGAST  
Tuscarora  
DEXTER MINE, Tuscarora dist,  
lode, Ag, Au

**JOHNSON, VERNON**  
Yerington  
EUREKA MINE, Yerington dist,  
lode, Cu, Au, Ag, Zn

**JUMPING JACK MNG CO**  
c/o Arthur Hudson  
135 9th Ave, San Francisco, Calif  
STRAY DOG MINE, Manhattan dist,  
lode, Au, Ag

**KADOW, LEON C**  
318 Belmont Ave, Tonopah  
MINE, Au, Ag, W

**KAISER ALUM & CHEM CORP**  
Box 391, Fallon  
FLUORSPAR MILL  
BAXTER MINE, Nye Co, fluor spar  
(See Calif)

**KAPPLER CLAIMS**  
Carlin  
Oper: Art Hansen  
MINE, Lynn dist, Au, Ag

**KEMPLE, G C**  
Goodsprings  
MARDEN ROCK MINE, Clark Co, Ag, Pb

**KENNECOTT COPPER CORP,**  
NEV MINES DIV  
McGill  
Gen Mgr: J C Kinnear, Jr  
Asst Gen Mgr: Paul Hett  
Asst Purch Agt: W N Ireland  
MINE, Ruth, surf, Cu, Au, Ag, MoS  
Supt: S W Smith  
Asst Supt: R C Nispe  
Ch Engr: K W Booker  
Ch Clk: B A Gillan  
20,000-TON FLOT CONCN, two reverbs  
Prod: 100,000,000 tons per year  
Mech-Elec Supt: W K Sanders  
Concn Supt: L G Immonen  
Smelter Supt: Ed Pesout  
Cone Supt: W F Jones  
Div Compt: R W Crosser  
NEV NORTHERN RY (Subsidiary)  
Gen Supt: H M Peterson  
(See Ariz, New Mex, Utah & East)

**KEY WEST NICKEL & COPPER**  
CORP  
212 S 15th St, Las Vegas  
Pres & Gen Mgr: A F Carper  
VP: N W Staley  
Sec: John M McKean  
Purch Agt: A F Carper  
KEY WEST MINE, Riverside via Nioapa,  
15 mi S of Bunkerville, surface, Cu, Ni, Pt  
Prod: 35-40 tons  
Mine Foreman: Harry Dustin  
35-TON ACID LEACH PL

**KING MINES**  
Beason Bldg, Salt Lake City, Utah  
ONETHA, ORO WEST ONETHA &  
MILWAUKEE CLAIMS, Hamilton,  
40 mi W of Ely, undgrnd, Pb, Ag, Zn, Cu  
Geol: F F Hintze

**KIRBY CANYON MINES, INC**  
Box 105, Goodsprings  
Pres: G G Gressman  
VP: A P Robbins  
Sec: Julia Robbins  
KIRBY CANYON MINES, Goodsprings,  
undgrnd, Pb, Ag  
Under devel

**KIRKENDALL & JACOBSON**  
Box 1049, Tonopah  
Owner: Walter Bowler  
FLORENCE MINE, Nye Co

**KNOWLES BROS**  
Elko  
PROTECTION MINE, Elko Co,  
Au, Ag, Cu, Pb  
Owner: Walt Davidson

**KNOWLES & MONTROSE CO**  
Mountain City  
GARNET HILL & MONTROSE

MINES, 21 mi SE of Tonopah  
undgrnd & surface, Ag, Au, Cu  
Under devel

**KOGAN, F E & F**  
Box 710, Ely  
CUBA 1-4, White Pine Co, Ag, Au

**KOLCHEK TUNGSTEN MINE**  
218 Felt Bldg, Salt Lake City  
KOLCHEK MINE, lode, Au, Ag

**KOLZE, R M**  
Box 197, Carson City  
WALTS PROPER, Carson City  
Tailings, Silver, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

**KOOFOLIS, MATHA**  
Beatty  
NAUGHTY BOY MINE, lode,  
Pb, Ag, Au  
LUCKY GROUP MINE, lode,  
Pb, Ag, Au  
Johnnie dist,  
GOLD CROWS MINE, lode,  
Fluorine dist, lode, Au, Ag

**KRANOVICH, BOB & NICK**  
Box 144, Ely  
QUINCY MINE, Humboldt Co,  
lode, Au, Ag

**LAKEVIEW TUNGSTEN**  
CORP

Box 32, Imlay  
Pres: R E Zornow  
VP: C H Zimmer  
Sec-Treas: George Quirk  
TUNGSTEN MINE, 3 mi E of  
Humboldt House, undgrnd, W  
Prod: 30 tons

**LAMB, CLIN E**  
Lovelock  
ANNIE CLAIM, Beason Tract  
dist, Pershing Co, Au, Ag

**LANG, JOSEPH**  
Gen Del, Lovelock  
DESERT QUEEN MINE, Deser  
dist, lode, Ag, Au

**LARSON, BRUCE & LEONARD**  
Box 612, Manhattan  
MANHATTAN CONS TAILORS  
Manhattan dist, lode, Ag, Au

**LARSEN, DAVID H**  
Box 302, Beason Mountain  
PITTSBURGH RED TOP MINE,  
Lander Co, lode, Au, Ag  
MILL

**LAST CHANCE MINE**  
Box 259, Ely  
Oper: Barrett Person  
MINE, Aurora dist, Ag, Pb  
Under devel

**LAURITZEN OPER, LTD**  
Box 96, Tonopah  
Owner: A A Lauritzen  
NORTH BELLE MINE, lode,  
Cu, Pb  
10-TON FLOT MILL

**LEAD KING MINES, INC**  
Box 1896, Las Vegas  
Pres & Gen Mgr: James R Searcy  
VP: Frank LaGrange  
Sec: Richard L Neville  
MINE, 14 mi NE of Las Vegas  
undgrnd & surface, Pb, Ag  
Under devel

**LEE, BILL & GEO LATROS**  
Box 981, Ely  
HANNA MINE, Osceola dist, lode,  
Pb, Ag

**LEE, CHARLES F**  
Box 981, Ely  
BEATRICE MINE, White Pine  
dist, lode, Pb, Ag, Cu, Zn

**LEONARD, FRANK**  
580 Ridge Street, Reno  
SHULTZ MINE, Cortez dist, Ag,  
Au, Cu, Pb, Zn  
Idle

**LINDSAY MINING CO**  
Box 150, Mina  
Pres: L L Stenquist  
VP: Dr H G Campbell  
Sec: W F Bishop  
Gen Mgr: Kenneth W Dunham  
GUN METAL MINE, 24 mi SE of  
Mina, undgrnd & surface, W  
Prod: 80 tons  
GRAY MILL

**LINKA, S H**  
Box 333-K, Rt 4, Ely, Calif  
BI-METALLIC MINE, Nye Co,  
Ag, Pb, Zn  
Idle

**LITTLE ROCK MINE**  
Box 100, Boulder City  
Open: W. Wheelwright  
MINE: Cu, Pb, Zn

**LOCKE M E**  
Box 100, Tonopah  
MOREY MINE, Nye Co, undgrd,  
Au, Ag, Pb  
Idle

**LOCKE MADISON**  
Locke Ranch via Ely  
BAY STATE (MOREY) MINE,  
Morey Ranch, lode, Ag, Au

**LONGAN, JOHN**  
Box 100, Tonopah  
GOLD BAR COLORADO MINE,  
2 mi SE of Lida, Ag, Pb, Zn  
Idle

**LONDON EXT MINING CO**  
Beowawe  
GOLDACRES MINE, 30 mi S of  
Beowawe, surface, Au  
Supt: R B Warmbrodt  
450-TON CYAN MILL  
Supt: H C Bishop, Jr  
(See Colo)

**LONG CANYON MNG CO, INC**  
c/o Archie P Farr  
2744 Jefferson Ave, Ogden, Utah  
See Harry J Eldredge  
KNOB HILL MINE, 14 mi E of Lee,  
Ruby Range dist, undgrd, Pb, Ag

**LORANGER, W E**  
Silver City  
HAYWARD MINE, Lyon Co, Au, Ag  
(Leased from St Joe Cons Mines)

**LOW, W L & C HOGEE**  
Box 429, Winnemucca  
RAINBOW MINE, Bottle Cr dist,  
lode, Cu  
Exploration only

**LOWMAN LEAD MINE**  
c/o J A Freeman, Mgr  
Winnemucca  
LOWMAN LEAD MINE, Gold Run  
dist, lode, Pb, Zn, Ag, Cu, Au

**LUDWIG, NORMAN**  
Box 51, Montello  
BONNIE RAY MINE, Delano dist,  
lode, Zn, Pb, Ag

**LUTES, E J**  
Box 51-7, Hawthorne  
AGNES D MINE, E Walker dist,  
lode, Au, Ag

**MACBOYLE, M & SAM HAIN**  
Box 526, Goldfield  
WISCONSIN GROUP MINE, Lida  
dist, lode, Au, Ag, Cu, Pb, Zn

**MANGANESE, INC**  
Box 2008, Henderson  
Pres: H S West  
VP: H R Golemor  
Supt: H V Door  
Gen Mgr: F A McGonigle  
Met: Rip Thompson  
Elec Engr: R F Raichlen  
Purch Agt: L D Richardson  
Controller: Henry M Alarid  
THREE KIDS MINE, 6 mi SE of  
Henderson, surf, MnO<sub>2</sub>, under devel  
Prod: 1,350 short tons  
Mine Supt: Ed C DeMoss  
Mine Engr: John T Atkins  
1,350-TON FLOT MILL, calcining  
& nodulizing kilns  
Mill Supt: A J Anderson  
Asst Mill Supt: F F Willey

**MANHATTAN CONSOL MINES  
& DEVEL CO**  
Tonopah  
(See Arizona)

**MARIGOLD MINE & MILL**  
Box 44, Valmy  
MINE, 4 mi S of Valmy, underground  
& surface, Au  
Idle  
(Leased to R L Brantley)

**MARSAM ENTERPRISES INC**  
201 S Beverly Dr, Beverly Hills,  
Calif  
Pres: Samuel Weiler  
VP: Jules Berliner  
Sec-Treas: Selma Weiler  
Gen Mgr: F D Shuck  
T HONE MINE, 9 mi S of Austin,  
undgrd, W  
50-TON CUSTOM MILL  
Under devel

**MARSHALL MINES**  
Jardine  
Gen Mgr: Wm R Marshall  
Pb & STARLIGHT MINES  
(Leased to A M Ross)  
ELKHORN MINE, undgrd, Au, Ag

(Leased to John Williams)  
25-TON GRAV CYAN MILL.

**MARSHALL MNG CO**  
Contact  
Gen Mgr: Maurice M Marshall  
MARSHALL MINES, 1 mi W of  
Contact, Cu, Ag, Au, silicate  
Prod: 20 tons  
Mine Supt: M M Marshall  
Asst Mine Supt: G V Marshall  
Mine Foreman: Leo R Bricker

**MARTIN, J D, ESTATE**  
c/o C D Martin  
905-907 Fulton-Fresno Bldg,  
Fresno, Calif  
MINE, 9 mi SW of Clark Station,  
undgrd, Au, Ag  
Supt: Pete Rodriguez  
Under devel

**MARTIN & PAYNE**  
Jungo  
COPPER QUEEN & RED BUTTE  
CLAIMS, 24 mi NW of Jungo,  
surface, Cu  
Under devel

**MARY ANN PLACER MINE**  
Baker Stage via Ely  
Owners: States, States & Green  
MINE, 40 mi SE of Ely, Au, Ag

**MARY ELLEN MINING CO**  
Hotel Nevada, Ely  
Owner: Ernest R Woolley  
PHYLLIS MINE, Hamilton dist, Pb, Ag

**MCCOY, BLAINE**  
Box 116, Mina  
NORTH STAR MINE, Cedar Mt dist,  
lode, Cu, Pb, Au, Ag, Zn

**McLANE, R M**  
Box D, Imlay  
NATCHEZ MINE, Sierra dist,  
Pershing Co, Au, Ag  
Idle

**McNETT, IVAN**  
Tonopah  
BLUFF & LAST ONE MINES, 70 mi  
from Tonopah, surface, Hg  
Under devel

**McQUEEN, FRED**  
Box 1137, Ely  
ANNEX GROUP MINE, Robinson  
dist, lode, Pb, Ag, Au, Cu, Zn

**MAY DAY MINE**  
Box 25, Silver City  
Owner: J S Jones  
Oper: A C Wilson  
MINE, Voltaire dist, lode,  
Pb, Au, Ag, Cu

**MED LEAD & SILVER MNG CO**  
First Nat'l Bank Bldg,  
Salt Lake City, Utah  
Pres: Pete Marthakis  
Gen Mgr: C A Elkins  
VICTORY CLAIMS, White Pine Co,  
Au, Ag, Zn, Fe  
Under devel  
(Leased from O H Evans)

**MERKT BROS**  
Box 103, Fallon  
GRAND VIEW MINE, Washington  
dist, lode, Pb, Ag, Au, Cu, Zn

**METALLICS UNLIMITED**  
East Ely  
CAMPANELLA-PINE NUT MINE  
& LUCKY STRIKE MINE, Cherry  
Creek, White Pine Co, W

**MIDGLEY, THOMAS III**  
Box 621, Lovelock  
GREEN GOLD MINE, Pershing Co,  
Au, Ag

**MILL CREEK COPPER CO**  
Mountain City  
Pres: Del E Smith  
Gen Mgr: H C Gorby  
Supt: William N Bigg  
MINE, 5 mi SW of Mt City,  
undgrd, Cu  
Under devel

**MILLER & THAYER**  
Box 225, Ely  
ANNIE MINE, White Pine Co, Ag, Pb, Zn

**MILLER MT MINING CO**  
c/o Jesse C Cuddeback  
Star Rt, Laws, Calif  
MILLER MT MINE, Esmeralda &  
Mineral Co, undgrd, Pb, Zn, Ag,  
under devel  
NEV EXT & SILVER CITY GROUP,  
Buena Vista dist, lode, Pb, Zn, Ag

**MILICK BROS**  
Baker Stage via Ely  
YORKSHIRE PLACER CLAIM,  
White Pine Co, Au, Ag  
Under devel

**MINERAL MATERIALS CO**  
1145 Westminster Ave,  
Alhambra, Calif  
RIENA VISTA IRON MINE, Box 645,  
Lovelock, 30 mi E of Lovelock,  
surface, Fe  
Prod: 1,000 tons  
Mine Supt: Frank Masterson  
Mine Foreman: Lloyd R Bailes  
Mine Engr: M W Redhead  
(See California)

**MINERS GOLD MNG CO**  
2189 McClellan St,  
Salt Lake City, Utah  
MINERS GOLD MINE, 2 mi NW of  
Midas, Au, Ag

**MINERVA SCHEELITE  
MNG CO**  
Box 901, Ely  
Gen Mgr: R Stopper  
SCHEELITE CHIEF, 50 mi SE of  
Ely, undgrd, W  
Prod: 15 tons  
25-TON GRAV MILL

**MINK, J W**  
560 9th St, Elko  
DIAMOND COPPER MINE, White  
Pine Co, Cu  
ROSEBUD MINE, Elko Co, Ag, Pb, Zn

**MOHAWK MNG CO, INC**  
c/o Carl Lemons  
65 W Center St, Fallon  
MOHAWK MINE, White Wolf dist,  
lode, Au, Ag  
ARGENTITE MINE & MILL

**MORE, JIMMIE D**  
Box 37, Sparks  
BUTTE MINE, Washoe Co, Au, Ag  
Idle

**MORLEDGE, F L, LESSEE**  
Box 180, Overton  
RED GORGE MINE, Overton,  
silica sand

**MT WHEELER MINES, INC**  
Hotel Nevada, Ely  
ST LAWRENCE MINE, 45 mi SE of  
Ely, undgrd, Pb, Ag, Cu, W  
Supt: Vern E Jeppson  
Under devel

**MUTUAL VENTURES SYN**  
409 Ness Bldg, Salt Lake City, Utah  
Pres: P C Lyon  
Gen Mgr: P C Lyon, Jr  
GOLD NOTE MINE, 57 mi S of  
Winnemucca, undgrd, Pb, Ag, Au, Zn, Cu  
Under devel

**N & M MINING CO**  
c/o H P Newman, Ione  
COPPER KING GROUP, Union dist,  
lode, Cu, Au, Ag, under devel  
RICHMOND MINE, Union dist,  
lode, Au, Ag, idle

**NAPP, I O**  
Box 267, Searchlight  
RED BIRD GROUP, Clark Co, Au, Ag

**NATIONAL COPPERMINES,  
INC**  
408 Ness Bldg, Salt Lake City 1,  
Utah  
Acting Pres: Paul C Lyon, Jr  
Sec: D R Stone  
KANSAS COPPER MINE, McGill,  
25 mi NE of McGill, undgrd,  
Cu, Ag, Au  
Under devel  
Mine Foreman: W C Dennison

**NAT'L LEAD CO, BAROID  
SALES DIV**  
Battle Mountain  
ROSSI MINE, surface, barite  
Supt: R B Spitzer  
(See Calif, So Dak, Tex, Central & East)

**NAT'L LEAD CO,  
TITANIUM DIV**  
Henderson  
TITANIUM REFINERY  
Under devel  
(See Calif, So Dak, Tex, Central & East)

**NATOMAS COMPANY**  
Battle Mountain  
Res Mgr: J L James  
GREENAN PLACER OPN,  
16 mi SW of Battle Mt,  
placer, one bucket dredge, Au, Ag  
Prod: 9,000 cu yds  
(See Calif)

**NEEDLE PEAK FLUORSPAR**  
Battle Mountain  
FLUORSPAR CLAIMS, 40 mi SE  
of Battle Mt, surface  
Under devel  
(Leased to Ford T Frost)

**NEVADA CO, THE**  
Austin  
Pres: J G Phelps Stokes  
Res Agt: N S Eaton  
BERLIN MINE, Berlin, undgrd,  
Au, Ag  
Under devel

**NEVADA EQUITY MNG CO**  
Austin  
Gen Mgr: R H Raring  
NEVADA EQUITY MINE, Au, Ag, Cu,  
Pb, Zn  
Idle

**NEVADA FLAGSTONE  
QUARRIES, INC**  
Box 1269, Las Vegas  
RED BLUFF MINE, Las Vegas

**NEVADA IRON ORE CO**  
Box 282, Lovelock  
IRON RR LEASE, Pershing Co,  
iron ore

**NEVADA LEAD & ZINC CO**  
Lessee: M H Woodward  
2606 S State, Salt Lake City, Utah  
KILLIE (NEV LEAD) MINE, Spruce  
Mt dist, lode, Pb, Au, Ag, Cu, Zn

**NEVADA-MASSACHUSETTS CO**  
Tungsten  
Pres: C H Segerstrom, Jr  
VP: M D Cronwall  
Gen Supt: W G Emminger  
TUNGSTEN MINE, 9 mi N of Mill  
City, undgrd & surface, W  
Prod: 450 tons  
Mine Supt: E Nash  
Mine Engr: D O Keefe  
450-TON GRAV-FLOT MILL  
Mill Supt: P McGuire  
Assayer: R V Noble

**NEVADA METAL MINES CO**  
222 Atlas Bldg, Salt Lake City, Utah  
Pres & Gen Mgr: H R Fisher  
VP: Leon Funnbeck  
MINE, near Imlay, Au, Ag, Pb  
Under devel

**NEVADA METALS MNG CO**  
202-3 Boston Bldg,  
Salt Lake City, Utah  
Pres: Samuel A Walsh  
VP: S V Walsh  
Sec-Treas: C T Praggastis  
MORNING STAR & DOTY MINES,  
Boone Spring, Ag, Cu, Pb, Zn, Fe  
Under devel

**NEVADA MONARCH CONS  
MINES**  
c/o H H Canizer, Wells  
MONARCH MINE, Elko Co, Ag, Pb,  
Zn, Cu

**NEVADA PACIFIC DEVEL CO**  
Box 186, Gabbs  
Pres & Gen Mgr: G N Tausan  
COMPANY MINE, 6 mi NE of Gabbs,  
undgrd, W  
Under devel

**NEVADA RAWHIDE MNG CORP**  
c/o Clarence Davis, Cheney, Wash  
MINE, Pyramid  
lode, Ag, Pb, Au, Cu

**NEVADA SCHEELITE, DIV  
OF KENAMETAL, INC**  
545 1/2 S Taylor St, Fallon  
NEVADA SCHEELITE MINE, Rawhide,  
53 mi SE of Fallon, undgrd,  
scheelite concn  
Prod: 100 tons  
Mine Supt: E M Colwell  
Asst Mine Supt: A O Wilson  
Mine Foreman: Harry Manny  
125-TON GRAV-FLOT MILL  
Mill Supt: Mark L Campbell  
Assayer: Lawrence W Trainor

**NEVADA SILICA SANDS, INC**  
Box 150, Overton  
Gen Mgr: F L Morledge  
SILICA MINE & NEV MILL, Overton,  
surface  
Supt: E V Hickman  
300-TON FLOT MILL  
Supt: Walter Huntsman

**NEVADA TUNGSTEN CORP**  
Box 194, Mina  
Pres: John Sinkey  
Sec: Fernando de Vazere  
Gen Mgr: Burdet A Winn  
GENTRY MINE, 15 mi E of Schurz, W  
SODAVILLE CUSTOM MILL, 200-ton  
grav



**NEVADA URANIUM CO**

Box 653, Lovelock  
Pres: Gus Rogers  
VP: L C Bottomley  
Treas & Gen Mgr: E J Bottomley  
STAR MINE, 22 mi E of Lovelock,  
underground, U  
Under devel

**NEWMONT EXPLOR, LTD**

Box 539, Goldfield  
SELIGMAN LODGE, White Pine  
dist, Ph, Zn, Ag, Cu, under devel  
CANDELARIA LODGE, Candelaria  
dist, Ph, Ag, explor  
(See Goldfield Deep Mines, Nev,  
Empire Star, Calif; Idarado &  
Resurrection, Colo; Newmont, East)

**NEW STRIKE MINE**

Austin  
Owner: C W Meyer  
MINE, Kingston dist  
Idle

**NEW WORLD EXPLOR,  
RESEARCH & DEVEL CO**

318 S Virginia St, Reno  
Pres: Russell T Miller  
VP & Mech Engr: F Quitt  
VP & Geol: R Decker  
Met: John Uhalde  
ALADDIN MINE, Box 908, Elko,  
30 mi SW of Elko, undergrd, Pb, Ag, Cu  
Prod: 30 tons  
MCCOY MINE, 30 mi S of Battle Mt,  
surface, Fe  
Prod: 300 tons  
NEW WORLD MINE, 18 mi NW of  
Geniach, Wyo, under devel

**NICKERSON, L J**

Box 117, Lovelock  
PORTLAND EXT MINE, Seven  
Troughs dist, lode, Au, Ag

**NIGHTINGALE MINE**

Lessee: The Wolfram Co  
Lovelock  
Mgr: John Heiger  
MINE, Pershing Co, W

**NINETY-NINE MINE, INC**

Goodsprings  
Pres & Supt: A J Robbins  
MINE, Goodsprings, Cu

**NIVLOC MINE**

c/o Edward Hines,  
Mirpan Hotel, Tonopah  
MINE, 7 mi SW of Silver Peak,  
underground, Ag, Au, Pb  
Idle

**NOONDAY MINES, LTD**

Box 71, Wells  
Pres: J B White  
VP & Gen Mgr: F H Crosby  
Sec: N G White  
NOONDAY MINE, 55 mi SW of  
Wells, undergrd, Pb, Zn, Ag,  
under devel  
NOONDAY MILL, under const

**NUNN COMPANY, THE**

Box 33, Overton  
Gen Mgr: Paul G Nunn  
MINE, surface, silica sand  
Supt: L P Keller  
Engr: C L McCallum  
500-TON HYDRAULIC MILL

**OHIO MINES CORP**

78 E McMillan Ave,  
Cincinnati, Ohio  
OHIO MINE, Goldpost, under-  
ground, Au, Ag  
Supt: Elmer C O'Berg  
CYAN MILL, under devel

**OLD BARNEY'S GOLD  
MINES**

Searchlight  
Pres: H M Morse  
Gen Mgr: Roy Williams  
Treas: I O Napp  
GOOD HOPE MINE, Au, Ag, Pb  
Supt: Roy Williams  
100-TON FLOT MILL, under devel  
BLOSSOM MINE, Clark Co, Au, Ag

**OLD ENGLISH GOLD CORP**

Box 111, Provo, Utah  
Pres & Gen Mgr: Joseph Hafen  
VP: Carl J Harris  
Purch Agt: Leon Newren  
OLD ENGLISH MINE, Troy Canyon,  
underground, Au  
Supt: Owen Peterson  
30-TON FLOT MILL  
Idle

**O'LEARY J & LOUIS V  
CIRAC**

Box 313, Tonopah  
IONE MINE, Union dist,  
placer, Au, Ag

**ONSTETT, RALPH**

Star Rt, Box 72,  
Grass Valley, Calif  
ESTELLA MINE, Mt City dist,  
placer, Au, Ag

**ORIG KLONDYKE DIVIDE  
MNG CO**

Box 846, Tonopah  
ORIG KLONDYKE MINE, Klondyke  
dist, lode, Ag, Au, Cu, Pb

**ORPHAN, CHRIST**

Box 1203, Ely  
GOOD LUCK MINE, White Pine Co,  
Ag, Cu, Pb, Zn  
NIKOLPOLIS LODGE, Robinson  
dist, Au, Ag

**OTT, VICTOR**

555 Eddy St, San Francisco, Calif  
ALLIED MINES, Union dist, lode,  
surface, CaF<sub>2</sub>  
(Leased from Roy C Ames)

**OVERHOLSER, WARREN W**

Box 229, Mina  
EMPIRE SILVER MINE, Columbus  
Marsh dist, lode, Ag, Pb

**OXBORROW, NARDI & HILL**

c/o J D Hill, Ely  
SUNNYSIDE MINE, Robinson dist,  
lode, Au, Ag

**PABCO PRODUCTS, INC**

Box 1546, Henderson  
WHITE EAGLE PIT MINE, 6 mi N  
of Henderson, surface, gypsum  
MILL

**PACIFIC BUTTE MINES**

c/o W B Naimith, Tonopah  
MONTEZUMA MINE, Esmeralda  
Co, Au, Ag, Pb  
EVA MINE, 35 mi S of Tonopah,  
underground, Pb, Ag, Au  
NEW YORK MINE, 29 mi W of  
Goldfield, undergrd, Pb, Ag, Au  
Idle

**PAHRANAGAT LAKE MNG CO**

c/o Tom Beard, Box 1801,  
Las Vegas  
ILLINOIS MINE, Lincoln Co, Ag, Cu, Pb  
Idle

**PAINE, SINTON & FRANK**

Box 904, Ely  
HAYES MINE, Robinson dist,  
White Pine Co, Au, Ag, Cu

**PANSY LEE MNG CO**

Box 733, Winnemucca  
Oper: R C Hanford  
PANSY LEE & W COAST MINES,  
11 mi SW of Winnemucca, undergrd,  
Au, Ag, Pb

**PAYMASTER MINE**

Battle Mountain  
Owner: Paul C Christopher  
MINE, 18 mi SE of Battle Mt,  
underground, Ag, Au, Pb  
Under devel

**PEER, GALE G**

Eastgate via Fallon  
ORO PLATE MINE, Churchill Co,  
Au, Ag  
Idle

**PENDERGAST, G B**

Tucacora  
APRIL POOL MINE, Rock Cr  
dist, lode, Ag, Au

**PENNSYLVANIA MINE**

c/o Frank Smith, Box 873, Ely  
PENNSYLVANIA LODGE, Viola  
(Penn) dist, Cu, Ag

**PERRY, EUGENE & FRANK**

Box 302, Woods Cross, Utah  
GOOD LUCK LODGE, Ruby Range  
dist, Ph, Ag, Cu, Zn

**PETERSON, G A**

Box 230, Mina  
NEW POTOMI MINE, 25 mi S of  
Mina, Candelaria (Columbus)  
dist, undergrd, Pb, Sb, Ag, Au  
Prod: 10 tons  
Supt: Joe Mainelli

**PETERSON, M F & LORENA**

Box 131, Tonopah  
OLD COWGIRL MINE, Tyho dist,  
lode, Au, Ag

**PETERSON MNG & MLG CO**

Austin  
Owners: Peterson & Fisher  
MINE, Lander Co, Mn

**PETERSON & PRATER**

Box 22, Gabus  
Owner: Helen Prater  
LITTLE JIMMIE MINE, Mineral  
Co, Ag, Cu

**PETERSON, W S**

Sulphur  
STREETER MINE, 4 mi E of  
Sulphur, surface, Pb, Ag, Cu, Zn  
SULPHUR MILL, S

**PHILLIPS, EDWARD H**

Box 653, Broken Hills  
ILLINOIS & LODGE MINES GROUP,  
12 mi N of Gabus, Pb, Zn, Ag, Au  
Idle

**PIOCHE MINES CONS INC**

Pioche  
POORMAN MINE, Pioche dist, lode,  
Pb, Ag, Au, Cu, Mn

**PORTLAND MINE &  
LAUGHTON & CAUSTEN MILL**

Box 114, Lovelock  
MINE, 25 mi N of Lovelock, under-  
ground, Au, Ag  
Lessee: Earl Tucker

**POSTON BROS**

Kalispell, Montana  
Oprs: R L Schneider &  
U L Poston  
PLACER GROUND in Rosebud dist  
of Northern Pershing Co, Au, W, Sn  
(Incl portion of Rosegold Placers, Inc)

**PRIESTER, OSCAR**

Tonopah  
UNLUCKY CLAIM MINE, Nye Co,  
Au, Ag

**PRINCE CONS MNG CO**

618 Kearns Bldg,  
Salt Lake City, Utah  
Pres, Gen Mgr & Dir: David L  
Gemmell  
Purch Agt: J B Whitehill  
PRINCE MINE, Zn, Pb, Au, Ag  
MINE Supt: D J Jackson  
Engr & Geol: Paul Gemmill  
Elec: S L Mahaffy  
Prod: 2,500 tons per month  
Idle

**PROUD, IRA**

Box 368, Willits, California  
CLARK MT VIEW & SANDY VIEW  
CLAIMS, Goodsprings dist, lode,  
Zn, Pb, Ag, Cu  
Idle

**PURDY, HARRY C**

Imlay  
ANTELOPE GROUP, Antelope  
dist, lode, Zn, Pb, Ag, Au, Cu

**PYRAMID CO, INC, LESSEE**

Silver Peak  
Pres & Mgr: Fred Vollmar  
M G L MINE, Pershing Co, W

**PYRAMID MINING CO**

c/o Fred Hess, Virginia City  
PYRAMID MINE, Comstock dist,  
lode, Au, Ag

**RARE MINERALS MNG CO**

Box 505, Sparks  
Pres & Gen Mgr: J T Collins  
Sec: F Steele  
BALD EAGLE GYPSUM MINE,  
Clark Co, surface, gypsum  
Mgr & Engr: C Noble  
MINE Supt & Mech Engr: W C Kruger  
Prod: 300 tons

**REDHEAD MINING CO**

Box 43, Baker  
REDHEAD MINE, White Cloud  
dist, lode, Pb, Ag, Zn

**RED HILL FLORENCE**

MNG CO  
Goldfield  
Pres & Treas: Frank J Friday  
VP: J W Boesch  
Sec: A Frank, Tonopah  
Gen Mgr: William J Frank, Tonopah  
FLORENCE MINE, 1 mi E of Goldfield,  
underground  
Idle

**REDUCTION MLG CORP**

Searchlight  
MILL, Au, Ag, Pb, Cu

**REED, H E & GUS RODGERS**

Box 31, Winnemucca  
RED ROCK MINE, Scotia dist,  
lode, Au, Ag

**REGAN, JOHN**

Mason  
SANTA CRUZ & EMPIRE MINE,  
Mineral Co, Ag, Pb, Zn, idle  
McCONNELL LODGE, Yerington  
dist, Cu, Ag, idle

**REICK, H F**

Box 123, Battle Mountain  
SILVER CHIEF MINE, Battle Mt  
dist, lode, Pb, Ag, Au, Cu

**RENO PRESS BROS CO**

Box 116, Reno  
GEIGER MINE, Washoe Co, Ag

**REVILLE LEAD MNG CO**

Box 172, Ely  
Pres & Gen Mgr: J J Brown  
Dir: H M Johnson  
Mgr: Wayne Cope  
REVILLE LEAD MINE, Wyo  
Reville, underground, Ag, Au, Zn  
Purch Agt: H W Felt  
MINE Supt: W Cope  
Asst MINE Supt: Nye & Co  
Engrs: F W Millard & Son  
Assay: M Pray  
Prod: 30 tons

**REYNOLDS SAND & GRAVEL  
CO**

Imlay  
LACE CHANCE MINE, Wrangell

**RICE, JEFF & JERRY & FRANK**

Box 882, Winnemucca  
RIO #1 & 2, Au, Ag  
KING GOLD #2 MINE, Winnemucca  
(Ten Mile) dist, Au, Ag

**RICE, OWEN**

Eureka  
DOE RUN MINE, Esmeralda Co, Ag, Cu

**RIECK, H R & NELSON EST**

Battle Mountain  
SILVER CHIEF MINE, Battle Mt  
of Battle Mountain, Pb, Zn  
Idle

**RIP VAN WINKLE CONS  
MNG CO**

Box 1630, Salt Lake City, Utah  
RIP VAN WINKLE MINE, Elko,  
Au, Ag, Pb, Zn  
125-TON FLOT MILL  
Idle

**ROBINSON, SAM M**

Box 1288, Ely  
COLUMBIA & KEYSTONE LODGE,  
1 mi E of Ruth, underground  
surface, Zn, Pb, Cu, Au, Ag, Sn

**ROCHESTER CONS MINES CO**

Box 521, Lovelock  
ROCHESTER MINES, underground  
Au, Ag  
Supt: M E Bananoff  
Cons Engr: L B Wright

**ROCK HILL TUNGSTEN MINE**

Box 119, Mina  
Operator: Mrs. Irene Hayes

**ROGERS & GEIGER**

c/o Gus Rogers,  
Box 31, Winnemucca  
BOSS, PILGRIM, HORT & YELDA  
ANTELOPE SPRINGS MINE,  
Pershing Co, Ag, Cu, Pb, Zn  
Supt: J E Bottomley

**ROMERO, FRANK**

Overland Hotel, Elko  
TOP LEAD MINE, Elko Co, Ag, Cu

**RONG, GEORGE W**

P O Box 15, Manhattan  
VIRGINIA CITY PLACER, Manhattan  
dist, Au, Ag

**ROOT ZINC LEASE**

Box 156, Goodsprings  
Gen Mgr: R K Hamilton  
Supt: L F Johnson  
BOSS, PILGRIM, HORT & YELDA  
PINE MINES, Ag, Pb  
Foreman: R H Reed  
75-TON GRAY MILL  
Foreman: G F Schwartz

**ROSEN CRANS MINE**

Pioche  
Pres: Urban Cole  
Gen Mgr: J G Hulse  
DEMOCRACY MINE, 67 mi SW  
Pioche, underground, Mn, W  
Under devel  
Met: J W Cole

**ROSS, A M**

Jarvis  
STARLIGHT MINE, Esmeralda Co, Ag, Cu

**ROSS & BOWMAN**

Lovelock  
Owner: Nevada Gold Mines Co  
ROUGH LOCK & LOOK MINE  
Pershing Co, Au, Ag

**ROUND MT GOLD DRG CORP**

351 Calif St, San Francisco, Calif  
Pres: F C Van Dine  
VPs: W C Browning, Hugh Ross  
Sec Treas: P C Knapp  
ROUND MT MINE, placer, 56 mi N of  
Tonopah, Au, Ag  
Idle

# ROVERON PARTNERS

Box 490, Elko  
BELLVIEW MINE, Chase dist, lode,  
Pb, Au, Ag, Zn

# RUBY, GEORGE E

Manhattan  
JOHNIE TOWN MINE, Nye Co,  
placer, Au

# RUGGLES, A L

Cherry Creek  
EGAN MINE, Cherry Creek dist, lode,  
Au, Ag

# RUNDBERG, LARS & RUDOLPH

P O Box 632, Austin  
KLING & KELLY MINE, Reese River  
dist, lode, Au, Ag  
Idle

# RUTH ELDER MINING CO

Box 195, Searchlight  
Owner: Willett Barton  
RUTH ELDER MINE, 2 mi N of  
Searchlight, underground, Au, Ag  
Under devel

# ST LAWRENCE MINE

803 Wilder Bldg, Rochester, N Y  
Pres: Mr Dinkey  
Sec: Ellsworth Nichols  
MINE, 48 mi SE of Ely, underground,  
Pb, Ag  
Under devel  
(Leased to Robinson, Cotins & Hulse)

# SALT LAKE - PIOCHE MNG CO

440 S 4th W St, Salt Lake City, Utah  
Pres: N H Martin  
VP: L W Hillam  
Sec: O H Martin  
APEX & FINANCIER MINES, 1 mi SE  
of Pioche, Au, Ag, Pb, Cu  
Under devel  
(Leased to Edwards & French, Box 61,  
Pioche)

# SAN RAFAEL MINE

Gabbs  
Lessee: L H Dickens, Hill &  
Chasovich & Charles Hammock  
MINE, 15 mi N of Gabbs, Quartz  
Mt dist, undgrnd, Pb, Zn, Au, Ag  
Prod: 300 tons

# SANDQUIST, E

Searchlight  
SOUTHERN NEV & VICTORY CLAIMS,  
Clark Co, Au, Ag

# SANFORD, M J

Lee  
AMERICAN BEAUTY MINE, Ag, Pb

# SANTA ANA SYNDICATE

Drawer A, Searchlight  
SANTA ANA & LUCK MINE,  
Crescent dist, lode, Au, Ag, Cu, Pb  
Under devel

# SCHAPPER, D S

Imlay  
RIVERVIEW PLACER, Pershing Co,  
Au

# SCHWEISS, FRANK, ESTATE

Eastgate via Fallon  
GOLD LEDGE GROUP, Churchill Co,  
Au, Ag  
Idle

# SEABISCUIT MINE

Box 34, Goodsprings  
MINE, Yellow Pine dist, Pb, Zn  
(Leased to Thos J Hammone)

# SEARCHLIGHT CONS MINING & MILLING CO

c/o Homer Mills, Searchlight  
BLOSSOM MINE & MILL, Clark Co,  
underground, Au, Ag  
GOOD HOPE GROUP, Searchlight  
dist, lode, Au, Ag

# SEARCHLIGHT HOMESTAKE MINING CO

Box 65, Searchlight  
Pres & Gen Mgr: F C Moore  
Sec: Donald Peters  
Gen Supt: F C Moore, Jr  
QUARTETTE MINE, 1 mi S of Search-  
light, underground, Au, Ag, Cu, Pb  
Under devel  
Prod: 1 ton

# SEE, NEWTON A

Box 327, Winnemucca  
ORANGE MINE, Warm Springs dist,  
lode, Au, Ag  
COYOTE MINE, Winnemucca dist,  
lode, Au, Ag

# SEGERSTROM, HEIZER MINES

Lovelock  
Supt: F H Dunn  
DION MINES, open pit, truck, Fe  
900-TON CRUSHING & SCREENING  
PL SUTHERLAND MINE, 15 mi NE of

# Lovelock, Sb

Idle  
HOLLYWOOD MINE, 30 mi NE of  
Lovelock, undgrnd, Sb  
Idle

# SELIG, A & R

Manhattan  
SUNSHINE & MILL LODE, Nye Co,  
Au, Ag  
Idle

# SELIG, ROBERT

Manhattan  
MINES & MILL, Manhattan dist, lode,  
Au, Ag

# SELIGMAN LEAD-ZINC MINE

Box 188, Ely  
Owner: Pat Fraser & Sons  
MINE, 61 mi W of Ely, underground,  
Ag, Pb, Zn  
Idle

# SHAW, CLARK C

662 Humboldt St, Fallon  
CAMP TERRELL CLAIMS, 30 mi S  
of Fallon, Churchill Co, Holy Cross  
dist, underground, Ag, Au, Pb  
Under devel  
FLOT MILL

# SHAW, LLOYD

662 Humboldt St, Fallon  
ANGLO-SAXON MINE, Churchill Co,  
Au, Ag  
Idle

# SHENANDOAH MINERALS CO

c/o Darwin Lambert,  
Box 688, Ely  
DOG STAR LODE, White Pine dist,  
Pb, Zn, Au, Ag  
Idle  
SUNDOWN LODE, Duck Creek dist  
GIANT & FREDERIC C LODES, Twin  
River dist, Pb, Zn, Au, Ag, Cu

# SHIELDS, ALDEN D

284 West Center Street, Fallon  
MOHAWK MINE, Lodi (Mammoth  
dist), lode, Pb, Ag, Au

# SHULTZE CLAIM

Beowawe  
SHULTZE MINE, 35 mi S of Beowawe,  
underground, Ag, Pb, Au, Zn  
SMELTER, 50-tons per month  
Idle

# SIERRA TALC & CLAY CO

OASIS MINE, 55 mi SW of  
Goldfield, underground, talc  
Supt: P A Bachick  
Engr: D B Kempfer  
(See Calif)

# SILVER DYKE TUNGSTEN MINE

Box 137, Mina  
Owner: Magnus C Thomie  
MINE, Mineral County

# SILVER ROCK MINES CO

c/o H R Fisher, 222 Atlas Bldg,  
Salt Lake City, Utah  
SILVER ROCK (WYSONA) MINE,  
Eureka dist, lode, Ag, Cu, Pb, Au  
Idle

# SIMPLIT, J R, CO

Supt: John Kobe  
SIMPLIT IRON MINE, 20 mi S of  
Palisade, underground  
Idle  
(See Idaho)

# SINGAYZE SYNDICATE

Wabaska  
MINE, surface, perlite  
Mgr: R J Penrose  
Idle

# SIRI & GUBLER

Box 532, Ely  
GREAT VALLEY MINE, 45 mi W of  
Ely, underground, Pb, Ag, Cu  
Idle

# SKY LINE ANNEX MINE

Box 1042, Tonopah  
Operator: L B Sammons  
MINE, 18 mi W of Tonopah, under-  
ground, Pb, Zn, Cu  
Under devel

# SNO-LITE PRODUCTS CO

Box 58, Reno  
Pres: C J Catron  
PERLITE PL, Comstock Drive, Reno

# SNOREEN & SONS

Box 142, Overton  
KAOLIN WASH SILICA SAND MINE

# SONOMA CORP

Box 854, Winnemucca  
Operator: W Alexander Hutton  
LITTLE JUPITER MINE, Sierra dist,  
lode, Au, Ag, Cu, Pb, Zn

# SOUND STATE METALS INC

Box 457, Reno  
Pres: Joseph Horststein  
Gen Mgr: F E Anderson  
LONE PINE & COLUMBIA MINES,  
Muncie Cr, undgrnd, Ag, Pb  
Idle

# SOUTHWEST DREDGING CO

Box 535, Lovelock  
Mgr: R H Pfeffer  
SPRING VALLEY & BONANZA MINES,  
placers, Humboldt Co, Au  
Idle

# SPAULDING MINES, INC

134 Kendall St, Winnemucca  
Pres: B W Andresen  
SPAULDING CANYON PLACER, 49  
mi SW of Winnemucca, Au  
Under devel

# SPEZZI, RAYMOND A

Mason  
MASON VALLEY MINE, Lyon Co, Cu  
Idle

# STANDARD SLAG CO

Box 3, Gabbs  
Pres: L A Beeghly  
VP: W E Bliss  
Sec-Treas: W H Kilcauley  
Mgr: R O Jones  
GREENSTONE MINE, 2 mi E of  
Gabbs, magnesite, surface  
Prod: 100 tons  
Supt: F W Reinmiller  
GREENSTONE MILL, calcining  
Supt: S V Wines  
STOKES MINE, 8 mi NE of Gabbs,  
Fe, surface  
Under devel  
Supt: P W Reinmiller  
MINE, Box 36, Wabaska, Douglas Co,  
Fe

# STAR METAL MINES

Elko  
Owner: P G Gribble  
MINE, N E Mountain City, W, Sb  
Under devel

# STARKS, GROVER

P O Box 69, Sparks  
GOLDEN CROWN MINE, placer,  
Olinghouse (White Horse) dist, Au, Ag

# STEWART, H N

Cornell St, Big Pine, Calif  
HIDEOUT MINE #1, 45 mi SW of  
Goldfield, open pit, talc  
LOUISE MINE

# STINNETT, JAMES T

Box 125, Eureka  
LAST CHANCE MINE, lode, Zn, Ag,  
Cu, Pb

# STOCKHOLM MINE

Elite Motel, Ely  
Contractor: O T Marks  
MINE, 2 mi W of Hamilton, undgrnd,  
Cu, Ag  
Under devel

# STRAND, WILLIAM

690 Wildes St, Fallon  
RAWHIDE TUNGSTEN MINE, 2 mi  
NE of Rawhide, undgrnd, scheelite  
Under devel

# STREETER, O J

Box 485, Elko  
SUMMIT VIEW MINE, Elko Co, Ag,  
Pb

# STRESHLEY, AUGUST

Austin  
MOOMBA MINE, Twin River dist,  
lode, Pb, Au, Ag, Cu, Zn  
Under devel

# SUMMERS, DELFORD T

Lovelock  
HOG RANCH MINE, Willard dist,  
lode, Au, Ag

# SUMMIT KING MINES, LTD

Box 632, Fallon  
Pres: Ira B Joralemon  
Gen Mgr: Percy G Dobson  
SUMMIT KING MINE, 31 mi E of  
Fallon, undgrnd, Au, Ag  
Idle  
70-TON CYANIDE MILL  
(Leased from Tonopah Devel Co)

# SUMMIT QUEEN MINING CO

Box 2044, Reno  
Pres & Gen Mgr: S G Baker  
VP: Nello Goufiantina, Jr  
Sec Treas: Harry Baer  
HONOLULU MINE, 30 mi E of Fallon,  
Idle

# SUNNYSIDE MILLING CO

Austin  
Owner: Samuel Weiler  
Gen Mgr: F D Shuck

BIRCH CREEK TUNGSTEN MINE, 8  
mi SE of Austin, surface, scheelite,  
Cu

Under devel  
Prod: 40 tons  
Mine Supt: Ronald Shuck  
SPENCER HOT SPRINGS MILL, 30-  
ton grav-flot  
Mill Supt: George Frasher

# SUNNYSLOPE MINE

Rt 1, Box 341, Reno  
Owner: Wesley J Gritton  
MINE, 35 mi SE of Yerington, under-  
ground, Au, Ag  
Under devel  
25-TON MILL, plates, concen

# SUSMILL, JACK

Battle Mountain  
HUMBOLDT COPPER MINE,  
Humboldt Co, Ag, Cu  
Idle

# SWANSON, H B

Hawthorne  
THE LITTLE HILL MINE, Mineral  
Co, Au, Ag

# SWEETWATER MINING CO, INC

Topaz, Calif  
Pres & Purch Agt: P R Leitzell  
VP: L M Leitzell  
Sec-Treas: E W Witt  
SWEETWATER MINE, 8 mi NE of  
Coeville, Calif, Au, Cu, W, Mo  
Supt: A B Hererling  
Idle

# SYLVIA D MINING CO, INC

Rawhide via Fallon  
RAWHIDE PLACER MINE, Rawhide  
dist, placer, Au, Ag

# TANNER, B L

Box 37, Searchlight  
SEARCHLIGHT INSUL PROD MINE,  
7 mi NW of Searchlight, surface,  
perlite  
MILL

# TAFOYA & WELCH

c/o Bill Welch, Las Vegas  
LUCKY JEW MINE, Yellow Pine dist,  
lode, Cu, Pb, Ag

# TEXAS #2 MINE

c/o Ray B Clemmons, Wadsworth  
MINE, Au, Ag

# TONOPAH DEVELOPMENT CO A SUBSID OF CALUMET & HECLA

First National Bank Bldg, Reno  
Pres: M A Diskin  
SUMMIT KING MINE & MILL, 1-1/4  
mi from Tonopah, Au, Ag  
(Leased to Summit King & Homestake)

# TONOPAH DIVIDE MNG CO

Box 1564, Reno  
VP: H H Luce, W E Sirbeck  
Sec-Treas: R M Erickson  
DIVIDE MINE, 6 mi S of Tonopah,  
underground, Au, Ag  
Idle

# TONOPAH MNG CO OF NEV

c/o H A Johnson, Resident Agent,  
Tonopah  
MIZPAH MINE, Manhattan dist, lode,  
& mill, Au, Ag  
Idle

# TRADER HORN MINE

Tonopah  
Mgr: J V Grismer  
TRADER HORN MINE, Tonopah,  
Au, Ag  
Idle

# TRI-STATE METALS INC

Mesquite  
LAKE VIEW CLAIM MINE,  
Bunkerville dist, lode, Cu, Au, Ag

# TOULON MILL

Lovelock  
Lessee: The Wolfram Company  
Mgr: John Heizer  
TUNGSTEN MILL, Pershing Co

# TUFFSTONE PROD CORP

Box 150, Sparks  
MINE & MILL

# TUNGSTEN KING MINE

Box 654, Tonopah  
Mgr: George Wilmot  
MINE, 30 mi NW of Round Mt,  
underground, W  
Under devel

# TUNGSTEN LEAD MNG CO

Box 204, Winnemucca  
TUNGSTEN MINE, Pershing Co, Pb

**TUNGSTEN PRODUCERS INC**

Box 164, Mina  
Ag: C F Swett  
BLUE JACKET MINE, 9 mi SW of  
Luning, underground, W

**TUNGSTONIA CO, LESSEE**

28 D St, Salt Lake City, Utah  
TUNGSTONIA MINE, White Pine Co, W

**TURK, FRANK**

Box 161, Ruth  
KING MINE, White Pine Co, Ag, Pb, Zn  
KEEN LODGE, Robinson dist, Zn, Ag, Au,  
Cu, Pb

**TWIN BUTTES MINE**

Lovelock  
MINE, Au, Ag, Pb  
Idle

**TWIN DOME EXPLOR & DEVEL CO**

c/o Wm E Swett, Box D, Imlay  
TWIN DOMES LODGE, Sierra dist,  
Au, Ag, Cu, Pb  
MILL  
Idle

**UNITED MINERALS CORP**

318 Felt Bldg, Salt Lake City, Utah  
Gen Mgr: G W Snyder, Jr  
HIP VAN WINKLE MINE, Elko, 30 mi  
N of Elko, underground, Pb, Zn, Ag, Au,  
under devel  
Mine Supt: Donald E Hyde  
Mine Foreman: Owen G Flannigan  
100-TON FLOT MILL  
LUCKY STRIKE MINE, Battle Mt,  
14 mi S of Battle Mt, underground,  
Zn, Pb, Ag, Au, under devel  
Mine Supt: Glenn Johnson  
Mine Foreman: Edwin Lauritzen  
GRAY MILL  
TEMPLE TUNGSTEN MINE, Imlay,  
7 mi N of Imlay, underground, W,  
Idle  
MONTE CRISTO MINE, Hamilton,  
49 mi W of Ely, underground, W,  
under devel  
Mine Supt: J H Smith  
(See Ariz, Idaho, Utah)

**U S GYPSUM CO**

GYPSUM MINE, Empire, surface  
KODAK PERLITE MILL, Box 31,  
Falcon (Dodge Cone Co)  
(See Calif, Colo, Mont, Texas,  
Utah, Wash, Lake Sup, Central  
& South East)

**U S LIME PROD CORP**

Box A, Sloan  
Gen Mgr: K Ellsworth  
SLOAN & ARROLIME MINES,  
18 mi from Las Vegas, underground,  
limestone & dolomite  
(Under devel)  
Supt, Sloan: William E Ellis  
Supt, Arrolime: W O Brown  
MILL, calcining & processing

**U S VANADIUM CO**

RILEY MINE, RED HOUSE,  
Potosi dist, Humboldt Co, W

**VALENTE, JOHN**

Pioche  
WOOD BUTCHER MINE, Lincoln Co,  
underground, Au, Ag, Pb

**VALLEY VIEW MINE**

Box 662, Winnemucca  
MINE, 28 mi NE of Golconda,  
surface, W  
(Leased to Spitzer, Etchart &  
Hosking)

**VALLEY VIEW MNG CO**

Box 413, Ely  
Pres: F C Horlacher  
VP: Alex Nibley  
Gen Mgr: C A Gardner  
VALLEY VIEW MINE, 20 mi E of  
Ely, Taylor dist, undergrd, Ag, Pb, Zn  
Under devel

**WALKER CORP**

Box 163, Ely  
WARD MINE, Ward dist, Pb, Au, Cu

**WAR EAGLE GROUP**

Box 488, Tonopah  
Owner: W A Flower  
GOLD CLAIMS, Meadow Canyon,  
60 mi N of Tonopah  
Idle

**WARD LEASING CO**

1811 S 7th East St,  
Salt Lake City, Utah  
Pres & Gen Mgr: L N Rasmussen  
CHIEF CONS MINE, Hamilton, Mn  
Supt: L J Price

**WARTIG, EDGAR**

Denio  
COPPER SHAFT MINE, Humboldt  
Co, Ag, Cu

**WEEKS, HOMER**

Box 102, Beatty  
SENATOR STEWART, Bullfrog  
dist, Au, Ag  
Idle

**WELCH, HUBERT**

1963 C St, Sparks  
CLOVERDALE MINE, San Antonio  
dist, lode, Au, Ag

**WEST COAST SILICA CO**

Box 150, Overton  
MOAPA MINE, Overton, placer,  
silica sand

**WESTERN DUKE MINE**

Box 724-S, Hawthorne  
Opr: J H Lightfoot

**WESTERN NEV COPPER MINE**

Box 46, Mason  
Gen Mgr: Leo Mason  
MINE, Cu, Au

**WESTERN STATES METALS**

Winnemucca  
GEORGE & CHARLIE MINE, 40 mi  
NE of Winnemucca, undergrd & surf, Mn  
Mgr: Warren R Clark

**WETHERN, C A**

Box 175, Mina  
DOUGLAS MINE, Au, Ag  
FORTUNA MINE, Au, Ag  
Silver Star dist

**WHITE CAPS GOLD MNG CO**

Box 485, Tonopah  
Lessee: Lead Belt Metals Corp  
WHITE CAPS MINE, Nye Co, Sb

**WHITNEY, L W**

Meadows, Idaho  
ARIZONA MINE, Contact (Porter)  
dist, lode, Cu, Ag, Au

**WIEHER & ASSOC**

826 S Third St, Las Vegas  
Gen Mgr: R F Bibb  
SURPRISE & LUCKY DUTCHMAN  
GROUPS, Crescent, underground,  
Au, Ag, fluorapat  
Supt: C H Chandler  
Foreman: Carl Hill  
Assay: H D Chandler

**WILLARD LEASING CO**

Box 486, Ely  
Mgr: Caesar Caviglia  
Owner: Cons Coppermines Corp  
WILLARD MINE, E of Ruth,  
underground, Zn

**WILSON, A C**

Box 25, Silver City  
MAY DAY MINE, Ormsby Co,  
Ag, Pb

**WINNEMUCCA MT MINES CO**

Box 31, Winnemucca  
Pres: O R Manunla  
VP: Fred Sims  
Gen Mgr & Purch Agt: Gus Rogers  
REXALL GOLD HILL STAR &  
GOLD HILL TUNGSTEN MINES,  
3 mi N of Winnemucca, underground,  
Au, W  
Supt: Elmon C Griffiths  
50-TON GRAY MILL  
Supt: Bert Clark

**WISER, IRA J**

Midas  
STAR GROUP MINE, Tecoma  
dist, Au, Ag

**WOLFRAM CO, THE**

Lovelock  
Mgr: John Heizer  
STAR MINE, Pershing Co, W

**WONDER MT MINES, INC**

109 S 3rd St, Las Vegas  
Pres & Gen Mgr: L G Blakemore  
CAL-NEV MINE #1, Box 54,  
Goodsprings, Au, Ag, Pb, Zn  
Under devel

**WOOD, DAVID G**

Box 38, Gardnerville  
LASTLAUGH MINE, 8 mi from  
Gardnerville, underground, W  
Under devel

**WRITESMAN, C & ALFRED H THIELE**

Box 21, Gabbs  
HASBROCK MINE, Quarts Mt  
dist, lode, Pb, Ag, Au, Cu

**YELLOW GOLD MINE**

Beatty  
YELLOW GOLD MINE, 20 mi  
NE of Beatty, undergrd, Au  
(Leased to Borneman, Walling &  
Hawkins)

**YELLOW PINE MINE**

Goodsprings  
MINE, 5 mi W of Goodsprings,  
underground, Pb, Zn  
Under devel  
(Leased to L F Jacobson)

**YOUNG, M L**

Box 485, Tonopah  
NEVADA SILVER MINE, Weepah  
(Lone Mt) dist, lode, Ag, Pb, Cu, Zn

**YUBA MLG CO,**

Box 287, Battle Mountain  
BARYTE NO 1 MINE, Lander Co,  
barite

**ZENDA GOLD MNG CO**

Las Vegas  
Pres: R T Whiting  
VP: B M Snyder  
Sec-Treas: James Boyle,  
Suite 306, Wm Fox Bldg,  
Los Angeles, Calif  
Gen Mgr: N C Stines  
(See Utah & Alaska)

**NEW MEXICO****ALLIED CHEM & DYE CORP, GEN CHEM DIVISION**

Box 631, Deming  
Mgr, Mng Oper: Robert H Dickson  
Asst Mgr, Mng Oper: Wilbert J  
Trepp  
Met: G H Massom  
DEMING MINES, 80 mi from  
Deming, underground, Cu, Fe  
Prod: 50 tons  
Supt: Mike Scheriff  
Foreman: Charles Gardner  
100-TON FLOT MILL, Deming  
Foreman: F Faulkner  
(See Colo, Central, South & East)

**AMERICAN SMELTING & REFINING CO**

SOUTHWESTERN DIVISION  
813 Valley Nat'l Bank Bldg,  
Tucson, Arizona  
Mgr: T A Snedden  
Ch Geol: L K Wilson  
FOREMAN HOG UNIT, Vanadium,  
New Mex, underground, Pb, Zn  
Supt: W C Waidler  
DEMING MLG UNIT, 600-ton sel  
flat pl  
Supt: H W Kaanta  
Idle  
(See Ariz, Colo, Calif, Idaho,  
Mont, Utah, Wash, Central & East)

**ANITA MINE**

Lordsburg  
Opr: Harrison & Walker  
MINE, Hidalgo Co

**ATWOOD COPPER MINES**

Box 636, Lordsburg  
Mgr: Ira L Mosely  
ATWOOD MINE, 3 mi S of Lordsburg,  
underground, Cu, Au, Ag, Pb

**BANNER MINING CO**

1910 First Nat'l Bank Bldg,  
Oklahoma City, Okla  
Pres: H I Grimes  
VP & Gen Mgr: E S Bowman  
Sec-Treas: W H Hardy  
BANNER MINE, 4 mi S of Lordsburg,  
Cu, Ag, Au  
BONNEY-MANILA & MISER'S CHEST  
MINES, Lordsburg  
Foreman: Coleman Dunkerson  
Engr: B W Venable  
500-TON FLOT MILL  
Foreman: Geo Stone  
Met: D M Reck  
Prod: 8,000 tons per month

**CAPITAN CORP**

123 W 4th St, Roswell  
Pres: Robert O Moore  
VP: Henry P Mathieu  
Gen Mgr: Carl L McFarling  
Sec: R T Squires  
Geol: William H McCartney  
Mech & Safety Engr: Frank G Posey  
PERSHING MINE, Lincoln Co,  
22 mi SW of Capitán, surf, Au, Ag  
Under devel  
Prod: 250 tons  
250-TON GRAY-AMAL MILL

**CATRON, C C**

Santa Fe  
JUANITA MINE  
(Leased to Fidel & Dave Tafaya,  
Magdalena)

**CHAMBERLIN & STACIA**

Magdalena  
Mgr: Robert Chamberlin  
WALDO MINE, Magdalena  
Zn, Pb, Ag

**CUSTOM MINING**

Box 53, East Vaughn  
Owners: Frank S & Susan R  
Gen Mgr: George Hall  
CUSTOM MINE, 24 mi NE of  
surface, hematite iron  
Prod: 75 tons

**DENVER MNG & MTL CO**

Cerrillos  
Lessee: G F Calloway  
CASH ENTRY MINE, NE of  
underground, Pb, Zn

**DRUNZER & CASNER**

Box 307, Santa Rosa  
Pres: H S Casner  
Gen Mgr: Q M Drunzer  
STAUBER MINE, 15 mi NE of  
Santa Rosa, surface, hematite Fe  
Prod: 300 tons

**DUVAL SULPHUR & POTASH**

Box 810, Carlsbad  
Gen Supt: W P Morris  
Purch Agt: J R Smith  
MINE, 21 mi E of Carlsbad,  
underground, potash  
Supt: J E Tong  
Foreman: J J Gasparich  
Engr: B G Messer  
Supt: G E Atwood  
Foreman: I B Phillips  
(See Central)

**EATON, WILLIAM J**

Socorro  
SOUTH JUANITA MINE

**ELAYER & CO**

Silver City  
Pres: C S Elayer  
Gen Mgr: W R Jenks  
LYNCHBURG MINE, Magdalena,  
underground, Pb, Zn, Cu  
Prod: 100 tons

**ELECTRA MINES, INC**

Box 242, Truth or Consequences  
Pres: Blanchard Hanson  
VP: J P Flake  
Sec: M E Conkling  
IMPERIAL MINE, 6 mi S of Truth  
or Consequences, undergrd, Cu, Fe  
FLOT MILL  
Idle

**EL ORO MINE**

Hillsboro  
Opr: E W Davis & A C Hinner  
MINE, 9 mi NE of Hillsboro,  
underground, Au, Ag, Cu  
Idle

**EXPLORATIONS, INC**

Silver City  
ROYAL JOHN MINE, Grant Co

**FOSTER & ROGERS**

Duncan, Ariz  
ALABAMA GROUP, Grant Co  
Idle

**GREAT LAKES CARBON CORP**

Box X, Socorro  
VP, Perlite Div: Geo Skel. Jr  
Opr Mgr: E A Harris  
MINE, 4 mi W of Socorro, surface,  
perlite  
Supt: W D Stone  
Foreman: Jerry Howell  
MILL, Socorro  
(See Colo, Calif, Nev, Ore & East)

**GREAT WESTERN MNG CO, MICA DIVISION**

Box 930, Las Vegas, Nev  
VP: A H Miller  
Sec-Treas: Robert Katson  
Gen Mgr: J M Haberl  
MINE, Mora, surface, mica  
200-TON MILL, Mora

**HAILE MINES, INC**

Box 37, Hillsboro  
Mgr: James I Moore  
HAILE MINE, near Kingston  
Sierra Co, Zn, Pb, Ag, Mn

**HAMMER & HOUSER**

Organ  
MEMPHIS KING MINE, Organ,  
underground, U

H & H BERYL PROSPECT, 8 mi  
NE of Memphis King, rare earths  
Idle



**HAYSTACK MT DEVEL CO.**  
A Subs. of SANTA FE RR CO  
38 Jackson Blvd, Chicago 4, Ill  
Pres: G G Garley  
VP: D Rydin  
Sec: C A Menninger  
Ch Engr: T O Evans  
Gen Supt: J W Kelly  
**HAYSTACK MT MINE**, Prescott,  
28 mi W of Grants, surf, U, V  
Mine Supt: J E Inman

**HURLOW MNG & MLG CO**  
Box 188, Bingham  
Gen Supt: J F Lower  
**SARON JONES MINE**, barite, CaF<sub>2</sub>, Pb  
110, Hansonberg dist  
Idle

# INTERNAT'L MINERALS & CHEMICALS CORP

Carlsbad  
**POTASH MINES**  
Mgr: G T Harley  
Asst Mgr: C A Arend  
Purch Agr: J F Farrell  
Mine Supt: M W Karchner  
Engr: H L Gardner  
Mine Foreman: E A Chowling  
Foreman: W F Ecklund, C E Wiley  
Met: H P Clark, Jr  
Elec: J W McCroskey  
Chem: L E CuPott  
Prod: 730 tons  
(See Ariz, Colo, Mont, S Dak, Wyo, Central, South & East)

**KELLY MINE LEASE**  
Magdalena  
MINE, Kelly, Magdalena,  
underground, Ag, Pb, Zn  
(Leased to J D Torres)

**KENNECOTT COPPER CORP,**  
**CHINO MINES DIV**  
Hurley  
Gen Mgr: W H Goodrich  
Asst Gen Mgr: F C Green  
Asst Purch Agr: A L Burns  
**CHINO MINES**, Santa Rita,  
surface & undergrd, Cu, Zn, MoS<sub>2</sub>  
Prod: 22,500 tons  
**FLOT MILL**, Hurley  
Supt of Mines: G J Ballmer  
Asst Supt: W E Herkenhoff  
**REVERB SMELTER**, Hurley  
Supt: E A Slover  
Asst Supt: W H Winn

**KIRK'S PERLITE INDUST**  
Box 376, Lordsburg  
Owner: Marshall Kuykendall  
**AMBER PEARL MINE**, 12 mi S of  
Lordsburg, surface, perlite  
Prod: 15 tons

**LATHAM & CHENOWETH**  
Box 785, Hot Springs  
Pres & Gen Mgr: A H Latham  
VP: R G Chenoweth  
**SALINAS MINES**, 55 mi from Hot  
Springs, undergrd, Pb, barite, CaF<sub>2</sub>  
(Under devel)  
(See Night Hawk)

**LITTLE GIRL MNG CO**  
Hillsboro  
Pres: J S Wade  
Mgr: E B Paxton  
**LITTLE GIRL & BLACK PEAK**  
**MINES**, undergrd, placer, Au, Ag, Cu, Bi  
5-TON GRAV MILL  
Idle

**LUCK MNG & CONST CO**  
Box 29, Silver City  
Gen Supt: J Hutchins  
**BOSTON HILL MINE**, Grant Co,  
surface, Fe, Mn

**MacDONALD & DOBSON**  
Box RR, Magdalena  
Gen Mgr: J A MacDonald  
Purch Agr: W R Dobson  
**NITT MINE**, 3 mi SE of Magdalena,  
underground, Zn, Cu, Pb, Ag

**MALONE DARHASANA MNG**  
**CO**  
Box 203, Lordsburg  
Pres: C Frickeisen  
**MINE**, Grant Co  
Idle

**McCRAY, H E**  
Box 590, Deming  
LEASED MINES

**McGHEE, DONALD & CO**  
Lordsburg  
**McGHEE MINE**, 25 mi SW of  
Lordsburg, underground, Pb, Zn,  
14 Cu, Au  
5-TON MILL  
Idle

**MELVA MINES CO, INC**  
Box 604, Socorro  
Gen Mgr: Nick Sapanas  
**MELVA MINE**, Au, Ag  
Idle

**METALS LTD OF MILL**  
**CANYON**  
Box Y, Magdalena  
Gen Mgr: Frank L Maher  
**H M METALS MINE**, 12 mi SW of  
Magdalena, undergrd, Au, Ag, Cu, Pb, Zn  
Geol: Seymour Thurmond, Jr  
15-TON GRAV FLOT MILL  
Idle

**MEX-TEX MINING CO**  
San Antonio  
**MINES**, Hansonberg, Pb, barite  
MILL, near San Antonio

**MINERALS OPER, INC**  
Box 56, Hachita  
Mgr: C J Vezzetti  
**HORNET MINE**, Grant Co

**MOCKING BIRD MNG CO**  
204 E 2nd St, Portales  
Gen Mgr: Paul Ridings  
**MOCKING BIRD MINE**, 18 mi S  
of Bingham, underground & surface,  
Pb, Zn  
Idle

**MOLYBDENUM CORP OF**  
**AMERICA**  
Questa  
Gen Mgr: A L Greslin  
Cons Engr: O R Whitaker  
**MOLY MINE**, 7 mi E of Questa,  
underground, molybdenite  
Supt: Jose Varela  
200-TON FLOT MILL  
Supt: Robert Creel  
(See Calif, Colo & East)

**MONTGOMERY, ARTHUR**  
Dixon  
**HARDING MINE**, 5 mi E of Dixon,  
undergrd & surface, non-metallics  
Supt: Flaudio Griego

**MONTGOMERY MINE**  
Gen Del, Lordsburg  
Owner: R A Custer  
**MINE**, underground, Ag, Cu, Pb  
Idle

**MUDRITE CHEMICALS**  
Box 590, Hatch  
Owner: J W O'Brien  
**PLAM PARK & HATCH EXT.**  
surface, barite, grav operations  
Foreman: Wayne Kemper

**NEW JERSEY ZINC CO,**  
**EMPIRE DIV**  
Hanover  
**HANOVER MINE**, Pb, Zn  
Supt: S S Juyett  
300-TON FLOT MILL  
Idle  
(See Colo, South & East)

**NEW MEXICO COPPER CORP**  
Box 56, Carrizozo  
Pres & Gen Mgr: C E Degner, Sr  
VP: John J Keel  
Sec: A D King  
Cons Engr: J A Payne  
Mech Engr: G E King  
**CONQUEHOR RIO TINTO MINES**,  
11 mi SW of Corona, Cu, Pb, Ag, CaF<sub>2</sub>,  
last waste  
**SURPRISE PARK MINES**, 11 mi SE  
of Carrizozo, Cu, Ag

**NEW MEX MNG & CONTR CO**  
503 N Jefferson St, Albuquerque  
Pres: C J Barnhisel  
VP: John Wood  
Sec-Treas: E P Chapman, Jr  
**CONTRACT EXPLOR & MNG**

**NIGHT HAWK MINE**  
c/o Latham & Chenoweth  
Box 785, Hot Springs  
**MINE**, Engle, Au, Ag, Cu, Pb, Zn  
Idle  
(See Latham & Chenoweth)

**ONTARIO MINE**  
Box 105, Duncan  
Owners: Billingsley Bros  
**MINE**, NE of Duncan, Ariz, Au, Ag,  
Pb, Cu  
Idle

**OZARK-MAHONING CO,**  
**MNG DIV**  
Deming  
**WHITE EAGLE MINE**, 3 mi SW  
of Deming, CaF<sub>2</sub>  
Mine Supt: Edward Powell, Jr  
(See Colo, Central & East)

**PALOMAS CHIEF MINES**  
Box 97, Winston  
Pres & Gen Mgr: A W Emerick

**PALOMAS CHIEF MINE**, Winston,  
underground, Au, Ag, Cu, Pb, Zn  
Engr: L B Fargo  
Supt: Edward R Armour  
Asst Supt: A W Messee

**PAPA, MRS SADIE**  
Magdalena  
**QUEEN GROUP MINES**, Socorro Co

**PARK, J A**  
Duncan  
**CARLISLE MINE**, 16 mi E of  
Duncan, Pb, Zn, Ag, Au  
125-TON FLOT MILL  
Idle

**PENNSYLVANIA MINE**  
Box 1361, Santa Fe  
Gen Mgr: Verne Byrne  
**PENNSYLVANIA MINE**, 20 mi  
S of Santa Fe, undergrd, Zn, Pb,  
Ag, Cu, Au  
Supt: R W Leigh

**PERU MINING CO**  
Box 309, Silver City  
Pres: Morris Blumberg  
VP & Gen Mgr: Joseph H Taylor  
VP: L R Berkeley  
Asst Gen Mgr: J W Faust  
Sec: J S Flory  
**PEWABIC-KEARNY MINE**, 1 mi  
E of Hanover, surf, Au, Ag, Cu, Pb, Zn  
Mine Foreman: Wallace Dow,  
J P Brown  
1,250-TON FLOT MILL, Deming  
Mill Supt: S T McBee  
Idle

**PERSHING MINE**  
Box 1657, Lubbock, Tex  
Owners: Dr & Mrs R S Pershing  
**MINE**, 22 mi from Captain, Au, Ag  
250-TON ANAL MILL  
Idle

**HELPS DODGE CORP**  
Tyrone  
**BURRO MT BRANCH**  
Agr: John F Stock  
(See Ariz, Texas & East)

**PORTALES MINING CO**  
204 E Second St, Portales  
Gen Mgr: Paul Ridings  
Asst Gen Mgr: G G Blunk  
**MINE**, 5 mi S of Bingham, under-  
ground & surface, Pb  
Prod: 158 tons  
Mine Supt: John Yost  
450-TON GRAV MILL, San Antonio

**POTASH CO OF AMERICA**  
Box 31, Carlsbad  
Pres: G F Coope  
VP & Treas: F O Davis  
VP & Res Mgr: R Haworth  
Elec Engr: R E Tarleton  
Geol: J B Cummings  
Plant Engr: R R Dabney  
Safety Engr: J P Hesler  
Purch Agr: C E Bithwell  
**MINE**, 21 mi NE of Carlsbad,  
undergrd, potassium chloride  
Mine Supt: R R Knill  
Asst Mine Supt: J E Edmunds  
Mine Foreman: Neil Juhola  
Mine Engr: T L Carey  
**FLOT MILL**  
Mill Supt: A J Wing, Jr  
Asst Mill Supt: H N Clark

**PROSSER, B E**  
Silver City  
**MINES**, Pinos Altos dist,  
underground, Pb, Zn, Cu  
Idle

**PUMICE CORP OF AMER**  
Box 216, Grants  
Pres: C E Clark  
VP: Harold G Robinson  
Gen Mgr: J A Freeman, Jr  
**MINE**, 6 mi NE of Grants, surface,  
pumice  
Supt: Johnny Matkovich  
Asst Supt: N E Neff  
Mill Supt: Joe Hoisington  
Mill Foreman: Refugio Garcia

**Q B Q CO, INC**  
Box 248, White Oaks  
Gen Mgr: D J Queen  
Gen Supt: F J Queen  
**OLD ABE & NO HOMESTEAK**  
**MINES**, Lincoln Co, undergrd, Au, W  
Idle

**RED HILL MINING CO**  
Hachita  
**RED HILL GROUP**  
Idle

**SAN MIGUEL MINE, MLG**  
**& SMELTING CO**  
Box 574, Las Vegas, Nev  
Gen Mgr: C R Crager  
**SUNSHINE MINE**, surface, mica

**SANTA FE LEAD-**  
**ZINC MINES**  
Santa Fe  
Mgr: Richard McGhee  
**TOM PAYNE MINE**, Cerrillos  
dist

**SHATTUCK DENN MNG**  
**CORP, FLOORS PAR BR**  
Box 1204, Albuquerque  
Gen Mgr: Fluorpar Br  
Geo A Warner  
Net: Wayne Fowler  
Ch Clerk: William F Caley  
**ZUNI MINE**, Box 38, Grants,  
25 mi S of Grants, undergrd CaF<sub>2</sub>  
Mine Supt: Joe M Griego  
**LOS LUNAS FLOT MILL**  
Prod: 100 tons of concn,  
200 tons acid grade CaF<sub>2</sub>  
Mill Supt: Coyne Hunt  
Mill Foreman: Henry F Stauffer  
Assayer: Augustine Chavez  
(See Ariz & East)

**SILVER DOLLAR MINE**  
Box 376, Lordsburg  
Owner: Marshall Kuykendall  
**SILVER DOLLAR MINE**, 25 mi N  
of Lordsburg, undergrd, Au, Ag, Pb, W  
Idle

**SILVER HILL MINING CO**  
Lordsburg  
Mgr: A J Straczinski  
**SILVER HILL MINE**, Hidalgo Co,  
San Simon dist

**SIXTY COPPER PROSPECT**  
**GROUP**  
Box 183, Magdalena  
Gen Mgr: S S Thurmond, Jr  
**"SIXTY" MINE**, 10 mi W of  
Magdalena, surface, Cu, Ag  
(Under devel)

**SKIDMORE MINING CO**  
Grants  
**MINE**, 20 mi NW of Grants,  
underground, U, V  
Mine Foreman: Joe McCosmick  
(See Colo)

**SOCORRO CORP**  
Albuquerque  
Pres: John Linnans  
Mgr: G E Taltan  
**HUNTINGTON MINE**, Socorro,  
underground, Mn

**STRONG & HARRIS**  
Vanadium  
**MILL SITE MINE**, 2 mi S of  
Lordsburg, underground

**SOUTHWEST POTASH CORP**  
Box 472, Carlsbad  
Gen Mgr: F H Stewart  
Asst Gen Mgr: W Aubrey Smith  
Elec Engr: Dale L Schrader  
Geol: Reid Wiltman  
Safety Engr: John Herring  
Purch Agr: A H Kunkel  
**MINE**, 26 mi NE of Carlsbad,  
underground, potash  
Prod: 3,000 tons  
Mine Supt: John Sowers  
Mine Foreman: Percy Danda  
Mine Engr: Ira Herbert  
3,000-TON FLOT MILL  
Mill Supt: R M Durland  
Mill Foreman: Leon Small  
Ch Chemist: H S Kaplan  
(See East)

**TAFOYA, FIDEL & DAVID**  
Magdalena  
**JUANITA MINE**, Au, Ag, Cu, Pb, Zn  
(Leased from C C Cronin)

**TELLEZ, ARCADIO M**  
Box 114, Hanover  
**PEERLESS MINE**, c/o C B Monroe,  
Silver City, 1/4 mi E of Central,  
underground, Pb, Zn  
Prod: 1 ton

**TERRY, H W**  
Monticello  
**MINE**, 2 mi E of Monticello,  
surface, U  
(Under devel)

**THOMPSON, ROBERT P**  
Tyrone  
**MINE**, near Tyrone, CaF<sub>2</sub>  
(Under devel)

**TIDWELL, CLARENCE**  
Bayard  
**PATSY MINE**, Grant Co  
Idle

**TORPEDO MINING CO**  
Organ  
Pres: A S Putney, Jr  
VP: L B Bentley

Sec: Edwin Mecham  
TORPEDO, MEMPHIS &  
STEPHENSON-BENNETT MINES,  
underground, Au, Cu, Pb  
Supt: J H Brown  
Assay: L B Bentley  
Idle

#### U S POTASH CO

Carlisle  
Res Mgr: H H Bruhn  
Dir, Ind Rel: L H Jones  
Purch Agt: R D Schenck  
Geol: J P Smith  
MINE & REFINERY, Carlisle,  
potash  
Mine Supt: George Heaton  
Refin Supt: R H Mills  
(See East)

#### U S SMELTING REFINING & MINING CO

Box 698, Bayard  
VP & Gen Mgr, West Oper: W C  
Page  
BAYARD MINE, Pb, Zn  
Mgr: J T Lewis, Jr  
Mine Supt: Elton Clark, Jr  
450-TON FLOT MILL  
Supt: Paris V Wrough  
(See Alaska, Ariz, Utah & East)

#### VANADIUM CORP OF AMERICA

EAST NEW MEXICO MINE,  
San Juan Co, U  
(See Ariz, Colo, Utah & East)

#### WHITE, DOUGLAS B

Box 601, Silver City  
ZUNIGA MINES, W of Fierro,  
surface, Cu  
LEACHING PL  
Met: Louis Osmer

#### WHITE EAGLE MNG CO

Deming  
Gen Mgr: J H Harrison  
WHITE EAGLE MINE, CaF<sub>2</sub>

## OREGON

#### AFTERTHOUGHT CLAIMS

c/o R A Rockne  
Rt 7, Eagleson Rd, Boise, Ida  
MINE, Pb, Ag  
Under devel

#### AL SARENA MINING CO

Trail  
BUZZARD MINE, Au, Pb, Zn  
Idle

#### ALCOA MINING CO

Box 199, Hillsboro  
BAUXITE DEPOSITS, Columbia &  
Washington Co  
Res Engr: Jack McWilliams  
Under devel

#### ALICE MINE

c/o Mrs Lillith M Turek  
Klamath Falls  
MINE, Sterling Cr dist, Jackson  
Co, Au, Ag

#### AMIDON, R G & CO, INC

Granite  
BUFFALO & TILlicum MINES,  
underground, Au, Ag, Cu, Pb, Zn  
FLOT MILL  
Supt: S J Giulio  
Idle

#### ARTHUR, JOHN

Baker  
CHLORIDE MINE, Rock Cr dist,  
Baker Co, Au, Ag

#### ASHLAND MINING CO

835 N Main St, Ashland  
Mgr: Dewey & Fred Van Currier  
ASHLAND MINE, 8 mi NW of  
Ashland, undergrd, W, Au, idle  
CHROME RIDGE MINE, 80 mi  
from Ashland, Cr  
50-TON GRAV MILL  
MATTEN MINE, 2 mi N of Ashland,  
underground, W  
Prod: 3-10 tons

#### BALD MOUNTAIN MNG CO

Box 11, Sumpter  
Owner: D N McTavish  
MINE, Baker, Au, Ag, silica, idle  
Mgr: W C Fellows  
Supt: L L Anderson  
Mill Supt: C F Anderson  
GEM & BUENA VISTA MINES  
Supt: J T Bonner

#### BARRICK, M F

Rt 2, Jacksonville  
HOT BISCUIT, NEW DEAL &  
GOLD KING CLAIMS, Upper  
Applegate dist, Jackson Co, Au, Ag  
Idle

#### BARTELS BROS MINING CO

Cottage Grove  
Pres: Wm Bartels, Sr  
Gen Mgr: Wm Bartels, Jr  
Supt: F J Bartels  
CHAMPION MINE, 14 mi SE of  
Disston, undergrd, Au, Ag, Cu, Pb, Zn, Fe  
200-TON GRAV FLOT MILL, idle

#### BIG FOUR MINE, INC

Rt 2, Box 505, Grants Pass  
Pres: Newell Wright  
Sec-Treas: R W Gartlett  
GOLD PLACER, hydraulic  
Gen Mgr: J E Bartlett  
Idle

#### BLUE CHANNEL MINE

Wolf Creek  
Oper: H L Brown  
PLACER, Josephine Co, hydraulic,  
1 giant, Au

#### BOAZ MINING CO

Seattle, Wash  
BUFFALO MINE, Granite dist,  
Grant Co, Au, Ag, Cu, Pb, Zn

#### BONANZA OIL & MINE CORP

Sutherlin  
Pres: A L Albee  
Sec: A Miller  
Gen Mgr: Jack Beck  
Geol: Dr Lloyd Staples  
Safety Engr: George Pearce  
BONANZA MINE, 8 mi E of Sutherlin,  
underground, Hg  
Prod: 30 tons  
Mine Supt: Burt Avery  
Mine Foreman: T W Bidwell, Sr  
50-TON RETORT FURN  
Foreman: T W Bidwell, Jr

#### BOOTH, G B

Sunny Valley  
COLUMBIA PLACER, Josephine  
Co, hydraulic, Au  
CLUMBY MINE, Au, Ag

#### BOWMAN, H L

Box 82, Jacksonville  
PLACER TAILINGS, Upper  
Applegate dist

#### BOWSER, W D

Ashland  
BOWSER #1 & ROBERT E  
MINES, Curry Co, Au  
(See ROBERT E)  
CHROME MINE, 43 mi W of  
Grants Pass, undergrd, Cr  
GRAV MILL  
Prod: 10 tons

#### BRANDENTHALER, A

Baker  
VIRTUE MINE, Au  
Under devel

#### BRATCHER MINING CORP

Rt 1, Box 17, Ashland  
Pres: L A Bratcher  
VP: R C Van Vleet  
BRATCHER MINE #1, 3 mi SW of  
Ashland, surface, W  
GRAV MILL  
Idle

#### BRICE CREEK MNG CO

STONEWALL MINE, Pb, Zn  
BIG ROCK MINE, Au  
GILBERTON CLAIMS, between  
Musick & Champion, Au, idle

#### BRISTOL SILICA CO

Box 505, Rogue River  
Pres: Fayette I Bristol  
BRISTOL MINE, 5 mi E of Rogue  
River, surface, silica  
Prod: 200 tons  
Mine & Mill Supt: Rolland Jones  
MILL

#### BROWN, A L

Holland  
HYDRAULIC PLACER, Upper  
Wolf Creek

#### BROWN, H L

Wolf Creek  
HYDRAULIC PLACER, Upper  
Wolf Creek

#### BROWN & BENTLEY

Box 185, Wolf Creek  
HAZEL QUARTZ MINE, Wolf Cr  
dist, Josephine Co, Au, Ag  
Idle

#### BRYANT, EARL

Box 94, Baker  
BAY HORSE MINE, Baker Co, Au  
Idle

#### BUCKHORN MINE

Merlin  
Owner: Herman Wiese  
MINE, Greenback Mt dist, Douglas  
Co, placer, Au

#### CALAPOOIA & BLUE RIVER MILL & MNG CO

1565 Brook Lane, Corvallis  
Pres: Kenneth O Watkins  
VP: Jessie Rice  
Sec: Aubrey S Tussing  
POORMAN MINE, 7 mi N of Blue  
River, underground, Au, Pb, Zn  
Under devel

#### CALHOUN & HOWELL

Dale  
ROBBINS, ORIENTAL & NORTH  
FORK PLACERS, Grant Co,  
dragline, Au, Ag

#### CELEBRATION MINE

Canyon City  
Owner: Irving Hazeltine  
MINE, Cr  
Idle

#### CHROME KING MINE

Box 672, Grants Pass  
Oprs: Thompson & Cox  
MINE, near Grants Pass, Cd  
Mgr: Edward Cox

#### CLARK, CLEO C

Sunny Valley  
GOFF MINE, Greenback dist,  
Josephine Co, placer, Au

#### CLINE, HARRY T

Glendale  
TUNNEL SIX BAR, VETERAN &  
HIAWATHA MINES, 8 mi NW of  
Glendale, placer, Au  
Idle

#### COAST MINERALS CO

Bandon  
OLD EAGLE MINE, Beach dist, Coos  
Co, Au, Ag

#### COLLINGS, Z J

Jacksonville  
STEAMBOAT MINE, Upper  
Applegate dist, Jackson Co, Au  
Idle

#### COOK & LANCE

Gold Hill  
MINE, Gold Hill dist, Jackson  
Co, Au, Ag

#### COOKE, DON

2914 NE 52nd St, Portland  
IDAHO-OREGON MINE, N of Jordan  
Valley, perlite  
Idle

#### CORDERO MINING CO

Ashwood  
HORSE HEAVEN MINE, 25 mi N  
of Madras, underground, Hg  
Supt: Frank E Lewis  
(See Calif & Nevada)

#### CROWN MNG & MLG CO

Scio  
Pres: Ed Bilyeu  
VP: Marvin Long  
Sec: Cyrus Peery  
CROWN MINE, 20 mi E of  
Mehama, undergrd, Cu, Au, Ag  
Idle

#### CURL BOURNE MINES

Sumpter  
Pres: C C Curl  
COLUMBIA-TABOR FRACTION,  
E & E & NORTH POLE MINES,  
7 mi N of Sumpter, underground, Au, Ag  
Foreman: Hal Bradley  
100-TON FLOT MILL  
Idle

#### CURRENT CREEK MNG CO

124 W 2nd St, Prineville  
VP: A D Amundson  
QUEEN OF OREGON MINE, 7 mi E  
of Ashwood, Sb  
Gen Mgr: Mike Draglich  
Under devel

#### DANT & RUSSELL, INC

Dantore Div, Box 150, Maupin  
Pres: T E Dant  
Mgr: E D Zoradi  
LADY FRANCES MINE, 13 mi S of  
Maupin, surface, volcanic glass  
120-TON GRAV MILL

#### DAY BASIN MINE, CO

c/o LeRoy Berry, Disston  
CHAMPION EXT GROUP, 18 mi S  
of Disston, underground, Pb, Cu, Zn  
Au, Ag  
THE PROFESSOR GROUP, 22 mi SE  
of Disston, underground, Cu, Zn, Pb,  
Ag, Au

#### DEEN, FRANK E

Bridgeport  
BALM TREE GROUP, 18 mi SE  
of Disston, underground, Pb, Cu, Zn  
Au, Ag

#### DEEP GORGE MINE

Selma  
Owners: J M & M N Jackson  
MINE, Cr

#### DEER CREEK PLACERS

Sumpter  
MINES, Sumpter dist, Baker Co,  
Au, Ag

#### DeJANVIER, GLENN

Rt 1, Box 337, Gold Butte  
MINE, 8 mi W of Gold Butte,  
surface & placer, hydraulic, Au, Ag

#### DERRIG, R A

Azalea  
DERRIG PLACER, Douglas Co, Au  
Idle

#### DUSTON, EARL

Box 492, John Day  
LAST CHANCE MINE, Canyon  
dist, Grant Co, idle  
MOHAWK MINE, Greenhorn dist,  
Grant Co, Au, idle

#### EAST EAGLE MNG CO

Box 699, Baker  
Pres: G R Holderman  
Sec-Treas: LaRoy Chadwell  
Gen Mgr: Raleigh Chadwell  
Supt: Robert Chadwell  
EAST EAGLE MINE, 42 mi NE of  
Baker, underground, Au, Cu, Ag  
50-TON GRAV-FLOT MILL

#### EICKEMEYER BROS

Post  
MAURY MT QUICKSILVER MINE,  
32 mi SE of Prineville, undergrd, Hg  
MAURY MT RETORT

#### ESTERLY MINE

Cave Junction  
Owner: R F Oliphant  
MINE, 8 mi SW of Cave Junction,  
placer, Au, Cr

#### EUREKA GROUP

Sumpter  
Opr: Harry J Yount  
MINE, Greenhorn dist, Grant Co,  
Au, Ag

#### EVANS, E E & W E

Box 334, Richland  
BADGER QUARTZ MINE, Eagle Cr  
dist, Baker, Au, Ag  
Idle

#### EVERGREEN MINE

Grants Pass  
Opr: Chas McDonald  
MINE, Gold Hill dist, Jackson Co,  
Au, Ag

#### FORREST QUEEN LOGGING & MINING CO

Rt 1, Box 1179, Grants Pass  
Pres: R W Slight  
VP: Virginia Niederman  
Gen Mgr: E L Niederman  
FOREST QUEEN MINE, 7 mi S of  
Grants Pass, placer, Au  
Supt: W McIntosh  
Asst Supt: John Fritz

#### GILLMORE & DeCHESNE

8008 40th Ave NE, Seattle 5, Wash  
BADGER, HOMESTAKE & GOLDEN  
GATE GROUPS, Susanville, Au, Ag,  
Pb, Zn  
Idle

#### GOLDEN EAGLE MINE

2017 7th St, Baker  
Owner: F R Klein  
GOLDEN EAGLE MINE, 18 mi S of  
Granite, underground, Au, Ag  
10-TON STAMP & PLATE MILL  
Idle

#### GRAVES CREEK MINE

Gold Hill  
Opr: Donna M Munday  
MINE, Graves Cr dist, Josephine Co,  
Au, Ag

**GREAT PINES CARBON CORP.**  
DICALITE DIV  
Terrace  
PLANT: surface, diatomaceous  
earth  
Supt: J. B. Carr  
(See Col. Gulf, Nev., New Mex & East)

**GREY BATTLE MINE**  
Baker  
Owner: Anthony Bradenthaler  
MINE, Vague dist near Baker,  
So. Au. W.  
75-TON PLAT MILL

**HAINES, B. R.**  
Rt 2, Jacksonville  
PLACER MINE, Palmer Cr., 2 giants,  
hydraulic, Au

**HANNA COAL & ORE CO.**  
SUBSID. M. A. HANNA CO.  
Riddle  
ELEC. FURN., Nickel Mt., Ni.  
Under contr.  
(See Lake Superior)

**HANNA DEVEL CO.**  
SUBSID. M. A. HANNA CO.  
Explor. Geol.: Walter A. Foster  
MINE, Nickel Mt., Douglas Co., Ni.  
Under devel.  
(See Lake Superior)

**HANSEN, FRED**  
Galice  
HAND PLACER, hydraulic, Au

**HAYES, BERT**  
John Day  
STANDARD MINE, underground,  
Cu, Cr, Au  
Idle

**HELENA MINES, INC.**  
1565 Brooks Lane, Corvallis  
Pres: William E. Caldwell  
VP & Gen Mgr: R. O. Watkins  
Supt: H. E. L. Barton  
HELENA, OREGON-COLO. & LEAD  
CRYSTAL MINES, 14-19 mi SE of  
Dixon, underground, Au, Zn, Pb, Cu, Ag  
(Leased to V. F. Hartman, Claude Nugent,  
Ivan Norgaard & Durham Bell, Kellogg, Ida)

**HILL, C. F.**  
Wolf Creek  
PLACER, hydraulic, 1 giant, Au  
Idle

**HI-POTENTIAL MINES**  
Main & River Sts, Cottage Grove  
Owner: Ray E. Nelson  
UTOPIAN, SWEETSTAKES & HIAWATHA  
GROUPS, 36 mi SE of Cottage Grove,  
underground, Au, Ag, Cu, Pb, Zn  
Under devel.  
5-TON AMAL MILL, Bohemia

**HOLLOWAY & MERRICK**  
1432 E. Main St., Medford  
Pres: William H. Holloway  
Sec: E. P. Merrick  
HIGH DIVIDE-PELEG, Moffatt Cr.,  
Cliff, 12 mi SW of Yreka, Calif.,  
surface, Cr  
Under devel., producing

**INDEPENDENCE MINE**  
Kerby  
Owner: D. A. Foster  
PLACER, Josephine Cr., Au  
Idle

**JANTZER, JOHN H.**  
Azalea  
HYDRAULIC PLACER, Hogum Cr., Au

**JAY GOULD CO.**  
2715 6th St., Baker  
JAY GOULD MINE, Greenhorn dist.,  
Baker Co., Au, Ag  
Supt: Fred Wickham  
50-TON MILL  
Idle

**JUMP-OFF-JOE MINES**  
Box 434, Grants Pass  
Owner: Frank Heath  
MINE, 21 mi N of Grants Pass, sur-  
face & placer, Au  
25-TON AMAL CONCN

**KETCHUM, JIM**  
Kerby  
GROUND SLUICING, Au  
Idle

**KLONDYKE MNG & MLG CO.**  
Box 597, New Pine Creek  
Pres & Gen Mgr: Ed Benefiel  
VP: Robert Severan  
KLONDYKE MINE, 8 mi E of New Pine  
Creek, underground, Au, Ag  
40-TON GRAY MILL  
Idle

**KRIEGER, CLARENCE**  
Rt 1, Box 7, Jacksonville  
KRIEGER PROP., Au, Ag  
Idle

**LA COMBE & DUNCAN**  
3218 SE Washington St., Portland  
SHAMROCK MINE, Baker dist., Au, Ag

**LANCE MINE**  
Box 503, Gold Hill  
Owner: R. E. Cook  
PLACER MINE, Fooths Cr., hydraulic,  
Au

**LAST HOPE MINE**  
Merlin  
Operator: Max Howland  
MINE, Au

**LEWIS PLACER**  
Galice  
Operator: Bud Lewis  
PLACER, hydraulic, Au

**LITTLE MINE**  
Union  
Operator: Alfred Crouter  
MINE, Union County, Au

**LUCKY STRIKE MINE**  
Granite  
Operator: Walter Ross  
MINE, Greenhorn dist., Grant Co., Au,  
Ag  
Idle

**MACY MINES**  
Baker  
MACY MINE, Sparta dist., Baker Co.,  
Au, Ag

**McCALEB CHROME MINE**  
Box 26, Selma  
Pres: R. E. McCaleb  
MINE, Cr  
Foreman: Jack Kelly

**McCLUNG, H. H.**  
Box 241, Rogue River  
PLACER MINE, Gold Hill dist., Au, Ag  
Idle

**McCULLOUGH, LLOYD**  
Box 142, Durkee  
PATSY W MINE, placer, Baker Co.,  
hydraulic, Au

**McINTOSH PLACER**  
Wolf Creek  
Operator: Harold McIntosh  
PLACER, Upper Coyote Cr., hydraulic

**McMANUS, R. E.**  
Rt 1, Gold Hill  
McMANUS PLACER, hydraulic, 1  
giant, Au  
Idle

**McMICHAELS, W. M.**  
Azalea  
DOUGLAS MINE, Riddle dist., Au, Ag  
Idle

**McTIMMONDS, BERT**  
706 SE "M" St., Grants Pass  
LITTLE ARCTIC PLACER, Josephine  
Co., Au  
Idle

**MEAD, WM. H.**  
208 Fremont St., San Francisco, Calif.  
VICTORY MINE, Box 197, Glendale,  
hydraulic placer

**MERCER MINING COMPANY**  
1565 Brook Lane, Corvallis  
Pres: Banner R. Brooks  
Sec: Lloyd W. Brooks  
MERGER MINE, 6 mi N of Blue River,  
underground, Au  
Under devel.

**MERRICK, EMERSON**  
1432 E. Main St., Medford  
GILSON PLACER, 20 mi SW of Medford,  
placer, Au, Ag  
Idle  
JAY BIRD MINE, 25 mi W of Jackson-  
ville, underground, Sb  
Idle

**MULKEY, CHAS.**  
MULKEY MINE, Greenhorn dist.,  
Baker Co., Au, Ag  
Idle  
(Leased to H. A. Friedland, Sumpter)

**MYERS, R. A.**  
4410 Clover Rd., Medford  
KATE-EL MINE, Upper Applegate dist.,  
Jackson Co., Au, Ag

**NOONDAY COPPER MINE**  
514 NW Second St., Grants Pass  
Gen Mgr: Earle N. Young  
MINE, 32 mi E of Powers, undergrnd,  
Cu, Au, Ag  
Under devel.  
Mine Foreman: Russell Taylor

**NORTHWEST DEVELOPMENT  
CO.**  
313 Pacific Bldg., Portland 4  
PERLITE MINE  
Idle

**O'BRIEN, D. S.**  
Prairie City  
NEBRASKA BOY MINE #1, Quartzburg  
dist., Grant Co., Au, Ag  
Idle

**OLIVE CREEK MINE**  
Sumpter  
Operator: Orville E. Preston  
MINE, Cracker Creek dist., Baker Co.

**ONSTOTT, RALPH**  
Star Rt., Box 72, Grass Valley, Calif.  
GOLD DREDGE, Jackson Co., Au, Ag  
Idle

**OREGON CHROME MINES, INC.**  
Box 475, Grants Pass  
MINE, Oak Field, near Selma  
(Leased to W. S. Robertson)

**OREGON KING MINES**  
Ashwood  
MINE, Jefferson Co., Au, Ag, Cu, Pb,  
Zn, Fe  
50-TON MILL  
Idle  
(Leased to Henry Adereff)

**PATSEY K MINE**  
Durkee  
Operator: M. K. Overstreet  
MINE, Cracker Creek dist., Baker Co.,  
Au

**PIERCE, PAUL**  
Jacksonville  
PLACER, hydraulic, Au  
Under devel.

**PIEREN, WESLEY & EARL**  
Galice  
LEIPOLD PLACER, Josephine Co.,  
hydraulic, 1 giant, Au

**PIERSON, JOHN & GEORGE**  
Susanville  
BEAR CREEK PLACER, underground  
& placer, Au, Ag  
Idle

**PINE CREEK PLACER CO.**  
Hereford  
PLACER MINE, Au  
Idle

**PITTOCK, T. RALPH**  
Medford  
PITTOCK PLACER, Upper Applegate  
dist., Jackson dist., sluicing, Au  
Idle

**PORTER BROS. DRG. CO.**  
Granite  
MINE, Clear Creek dist., Au  
Idle

**PORTLAND CONSOLIDATED**  
2017 7th St., Baker  
Owner: Frank R. Klein  
MINE, 14 mi SW of Granite, undergrnd,  
Pb, Ag, Zn, Au  
Idle  
(Leased to Chas. Sayco & Son)

**POWDER RIVER DREDGING CO.**  
Sumpter  
SUMPTER VALLEY MINE, Sumpter  
dist., Baker Co., Au, Ag

**PYX MINE**  
Baker  
Owner: Jess Edwards & Assoc.  
PLACER, Greenhorn dist., Au  
15-TON STAMP MILL  
Idle

**QUEEN of BRONZE MNG &  
SMELTING CO.**  
822 N. 7th St., Grants Pass  
Pres: E. R. Waite  
QUEEN of BRONZE MINE, Josephine  
Co., Cu  
Idle

**QUICKSILVER SYNDICATE**  
Blackbutte  
Pres: Frank Taylor  
BLACK BUTTE MINE, Hg  
Gen Mgr: Fred L. Mills  
75-TON FURNACE  
Idle

**RAND, LANGDON**  
Baker  
Pres: Irving Rand  
JOHNNIE & CATHERINE CLAIMS, Sb,  
Au, W  
30 CLAIMS at Homestead, adjoining  
Iron Dyke Mine, Cu, Au, Ag

**RED LEDGE, INC.**  
318 Idaho Bldg., Boise  
Pres: W. H. Symons  
Sec: Elmer Fox  
MINE near Robinette, Cu, Ag, Au  
Idle

**RICK, W. D.**  
Box 223, Baker  
MACY MINE, Baker Co., undergrnd, Au  
SMALL GIBSON MILL  
Idle

**RIFE, RAY**  
Glendale  
TENNESSEE MINE, 2-1/2 mi S of  
Quines Cr. store, placer, Au

**ROBERT E MINE**  
Ashland  
Owner: W. D. Boxer  
MINE, Chetco dist., Curry Co., Au, Ag  
10-TON CYANIDE MILL  
Idle

**ROBERTSON, W. S. & ASSOC.**  
Box 475, Grants Pass  
HUMDINGER MINE, Lower Applegate  
dist., Au, Ag  
BUNKER HILL MINE, Josephine Co.,  
Au  
Idle

**ROSS, WALTER**  
Granite  
LUCKY STRIKE MINE, Grant Co.,  
Greenhorn dist., Au, Ag  
Idle

**SCHLEIGH PLACER**  
Wolf Creek  
Operators: Schleigh & Booth  
SCHLEIGH PLACER, Wolf Creek,  
hydraulic, Au  
JASON MINE, Greenback dist., Jose-  
phine Co., Au  
Idle

**SEATON, WILLIAM**  
1331 10th St., Baker  
BETTY JANE MINE, Baker Co., Au, Ag

**SEMON, R. D.**  
Rt 2, Box 29, Medford  
SHAMROCK MINE, Ni, W, Co  
Idle

**SMITH LUMBER & MINING CO.**  
Box 707, Wolf Creek  
Pres: A. C. Smith  
PLACER MINE, Wolf Creek, Au  
Idle

**SNARELY, ORVILLE N.**  
Rt 2, Box 35, Jacksonville  
OLD FEDERAL MINE, Upper Apple-  
gate dist., Jackson Co., Au, Ag  
Idle

**SOURDOUGH CHROME MINE**  
408 NE First St., Grants Pass  
Pres: Fay I. Bristol  
Gen Mgr: Ben Baker  
MINE, 32 mi W of O'Brien, undergrnd,  
chromite  
Prod: 20 tons

**SOUTHERN OREGON MNG CO.**  
1260 Sunset St., Medford  
PLACER near Rich, shovel & washer,  
Au  
Supt: J. D. Browdish

**SPANISH GULCH MINES, INC.**  
Antone Rt., Mitchell  
MINE  
Idle  
(Leased from Waterman Placer)

**SPEAKER, HENRY**  
Wolf Creek  
HYDRAULIC PLACER, Wolf Cr., Au

**STERLING MINES, INC.**  
Jacksonville  
STERLING MINE, placer, 200-yd  
hydraulic, Au  
Gen Mgr: D. F. McCormick  
Operator: P. E. Pearce  
Idle

**STEWART, HARRY**  
Box 115, Wolf Creek  
M. H. DAVIS GROUP, Josephine Co., Au,  
Ag  
Idle

**STONE, QUENTIN**  
803 E. "D" St., Grants Pass  
RENO MINE, Galice dist., Josephine Co.,  
Au, Ag

**SUGAR LOAF MINE**  
Myrtle Point  
Operator: Lee Wagner  
MINE, Beach dist., Coos County, Au

**TAKILMA DREDGING CO.**  
Box 15, Takilma  
Pres: Howard Beasley



**TAKILMA DREDGING MINE**, 1 mi N of Takilma, dragline dredge, Au  
Idle

**TAR BABY MINING CO**  
529 Newhouse Bldg, Salt Lake City, Utah  
Pres: W E Caldwell  
VP & Manager: K O Watkins  
Sec-Treas: B M Slusser  
**MUSICK MINE**, 16 mi SE of Diation, underground, Au, Cu, Ag, Pb, Zn  
Under devel

**THERESA K MINE**  
Durkee  
Operator: J T Bowers  
**MINE**, Burnt River dist, Baker Co, Au

**THOMAS, FRANK**  
Sunny Valley  
**THOMAS PLACER**, Sunny Valley, hydraulic, 1 giant, Au  
Idle

**THOMPSON & COX**  
Box 672, Grants Pass  
**CHROME KING MINE**, Cr  
Gen Mgr: Edward Cox

**TILLER DEVELOPMENT CO**  
324 Public Service Bldg, Portland  
**MINE** near Tiller, Hg  
Mgr: Roy F Hickman  
**35-TON FURNACE**  
Idle

**TRICKEL ELECTRIC SERVICE**  
3010 Third St, Baker  
Owner: C J Trickel  
**FRIDAY, BULL RUN, HOWARD CHROME & MULTIMETALS MINES**, Baker Co, undgrnd & surface, Cr, Ba, Cu, Au, diatomite  
**50-TON GRAV-CYAN MILL**, 10 mi E of Baker

**TULARE, GEORGE**  
Rt 2, Box 371, Gold Hill  
**SYLVANITE MINE**, 3 mi E of Gold Hill, underground  
Idle  
**CORRAL G MINE**, 6 mi N of Gold Hill, underground, Au  
Idle

**UDELL & WATKINS**  
1565 Brook Lane, Corvallis  
**YANKEE GIRL MINE & GRUBSTAKE MINES**, 6 mi N of Blue River, underground, Au  
Idle

**VICTORY MINE**  
Glendale  
Operator: Leo D Baker  
**MINE**, Green Mountain dist, Douglas Co, Au

**WATERMAN PLACER MINES**  
Mitchell  
Gen Mgr: E O Waterman  
Asst Gen Mgr: Giber Waterman  
Sec: Ralph Waterman  
**SPANISH GULCH PLACER**, 25 mi E of Mitchell, placer, Au, Pt, monazite sand  
**ROCK RIFFLE PLACER**, 25 mi E of Mitchell, placer, Au, Pt, monazite sand  
Under devel

**WATKINS, KENNETH O**  
1565 Brook Lane, Corvallis  
**WARRNER MINE**, Pb, Zn  
**SUNSET MINE**, Au, Cu, Pb, Zn  
**LEROY MINE**, Cu, Pb, Zn  
**LEHMEN MINE, ANNIE TRAIL GROUP MINES**, underground  
Under devel

## SOUTH DAKOTA

**ABINGDON POTTERIES, INC**  
801 N Main St, Abingdon, Ill  
VP: J M Lewis  
**WHITE ELEPHANT & TOWNSITE MINES** near Custer, pegmatite minerals  
Mgr: Henry Kautasch, Custer

**AMERICAN COLLOID CO**  
Belle Fourche  
**BELLE MINE**, surface, bentonite  
Supt: Edwin Busfield  
**BELLE MILL**  
Prod: 180,000 tons per year

**AMERICAN MNG & SMLTG CO, INC**  
Keystone  
**GALENA #1, SPOKANE MINES** near Keystone, Ag, Pb

**ANDRE, WALTER W**  
Custer  
**PUNCH MINE**, 10-1/2 mi SE Custer, pegmatite minerals

**APPLETON & CROWN MINES**  
Custer  
**APPLETON MINE**, 12 mi S Custer, pegmatite minerals  
**CROWN MINE**, 3-1/2 mi NE Custer, pegmatite minerals

**BALD MOUNTAIN MINING CO**  
Trojan  
Pres: O D Collis  
Treas: W H Reidesel  
Gen Mgr: C E Dawson  
Oper Mgr: R J Stoeber  
Geol: F A Miller  
Mech Engr: L P Trucano  
**MINE**, 6 mi W of Lead, underground, & surface, Au, Ag  
Prod: 350 tons  
Mine Supt: J Lauritsen  
Mine Engr: J Kiley  
**350-TON CYAN MILL**  
Mill Supt: R D Gallo  
Mill Foreman: B Olson  
Assayer: W Harris

**BELLE ELDRIDGE GOLD MINES**  
Box 437, Deadwood  
Pres: Alfred Haug  
Gen Mgr: Carl Johnson  
Sec-Treas: Ove E Ellefson  
**BELLE ELDRIDGE GOLD MINES**, Au, Ag, Pb, Zn  
**100-TON FLOT MILL**  
Under devel

**BLACK CHRYSTAL MINE**  
Keystone  
Owners: D H & B A Hardesty  
**MINE**, 5 mi NE of Hill City, W  
Idle

**BLACK HILLS KEYSTONE CORP**  
Keystone  
Pres: W K Wallace  
**INGERSOL MINE**, beryl, lepidolite, mica, tantalite, feldspar  
**50-TON FLOT MILL**  
Mgr: A I Johnson

**BLACK HILLS LIME COMPANY**  
Pringle  
Mgr: Samuel A Kirk  
**LIMESTONE QUARRY & KILN**

**BLACK HILLS TIN COMPANY**  
332 S Michigan Ave, Chicago, Ill  
Pres: Ross J Beatty, Jr  
VP: John T Beatty  
Sec: B A Brophy  
**MINE**, Tinton, surface, spodumene, tantalite  
Prod: 60 tons

**BLAND, GEORGE**  
Hill City  
**BECHER MINE**, near Custer, beryl  
**PLEASANT VALLEY MINE**

**BOBBINGTON, IRA**  
Keystone  
**PINE CREEK LODGE MINE**, pegmatite minerals

**BOURASSA, CARL**  
Custer  
**TIN QUEEN MINE**, near Hill City, pegmatite minerals

**BURGESS & REED**  
Custer  
Operator: Joe Burgess  
**SKY ROCKET MINE**, 4-1/2 mi SE of Custer, pegmatite minerals

**BURNSIDE, AMOS V**  
Custer  
**TRIANGLE A MINE**, 1 mi SE of Custer, pegmatite minerals

**BUTTE, CLARKE**  
Pringle  
**WHITE CAP MINE**, near Keystone, pegmatite minerals  
Idle

**CAMPBELL, GEORGE, SR**  
Custer  
**DAKOTA MINE**, 15 mi SE of Custer, pegmatite minerals

**CANFIELD, C & L**  
Hill City  
**EUREKA MINE**, near Hill City, pegmatite minerals

**CLIFFORD, E B**  
Custer  
**SMOKEY MINE**, pegmatite minerals

**COLLINGWOOD, LEWIS**  
Custer  
**WHALE MINE**, 19 mi SE of Custer, pegmatite minerals  
**CHISLER MINE**, near Custer, pegmatite minerals

**COPPO, RAY**  
Deadwood  
**SILVER QUEEN MINE**, Ag, Ab

**CORDES, V & B**  
Keystone  
**LONE STAR LODGE**, near Keystone, pegmatite minerals  
Idle

**DAKOTA TIN & GOLD CO**  
Spearfish  
**MINE**, pegmatite minerals

**DUNCAN, LAWRENCE**  
Custer  
**MINE**, near Keystone, pegmatite minerals

**EVANS, ROBERT W**  
Custer  
**DIAMOND DICK**, 8 mi SE of Custer, pegmatite minerals

**FISHER, JOHN D**  
Custer  
**DIKE LODGE MINE**, pegmatite minerals

**FLUORSPAR DEVELOPMENT CO**  
Deadwood  
Mgr: George W Wolf  
**MINE**, Lawrence Co, CaF<sub>2</sub>

**FRERICHS MINING COMPANY**  
Box 352, Deadwood  
Pres & Gen Mgr: D A Frerichs  
Sec-Treas: P J Parker  
**FRERICHS MINE**, 1-1/2 mi SW of Deadwood, Au, Ag  
Under devel

**GIRA, B A**  
Custer  
**MINE**, pegmatite minerals

**GOLD MT MINING CO**  
Hill City  
Pres & Mgr: A J Birdsell  
Sec: M E Birdsell  
**75-TON FLOT MILL**  
Idle

**HAZLETINE, LLOYD**  
Keystone  
**KEYSTONE - ELKHORN MINE**, pegmatite minerals

**HELEN BERYL MINING CORP**  
Custer  
**BERYL MINE**, Custer Co

**HOEFERT, H L**  
Custer  
**ARCADE & VICTORY #3 MINES**, pegmatite minerals  
Idle

**HOLY TERROR MINING CO**  
Keystone  
Sec: George Flavin  
Gen Supt: Otto M Ellerman  
**HOLY TERROR MINE**, underground & surface, spodumene, beryl, mica, columbite  
Prod: 100 tons  
**100-TON FLOT MILL**

**HOMESTAKE MINING COMPANY**  
100 Bush Street, San Francisco 4, California  
Pres: Donald H McLaughlin  
VP & Gen Mgr: Guy N Bjorge  
VP & Treas: Archibald A Gulick  
VP: James W Sweet  
Sec: John W Hamilton  
Ass Sec: William W Murray  
**HOMESTAKE MINE**, Lead, underground, Au  
Prod: 1,209,884 tons per year  
Asst Gen Mgr: H A Walker  
Mine Supt: C N Kravig  
Chief Counsel: Kenneth C Kellar  
Ch Met: Nathaniel Hers  
Ch Geol: James O Harder  
Ch Engr: J D Johnson  
Ch Elec Engr: C L Gust  
Consul Geol: James A Noble  
Ch Mech Engr: LeRoy Seyhers  
**YATES COMPRESSOR PL, ROSS CRUSHER PL, SOUTH MILL & CYAN SAND PLS #1 & 3**, lead

**HOUTS, L J**  
Custer  
**REDBIRCH MINE**, 20 mi SE of Custer, pegmatite minerals

**HUFF, WALTER**  
Keystone  
**MINE**, pegmatite minerals

**INTERNATL MIN & CHEM CORP**  
**EASTERN CLAY PROD DIV**  
Box 451, Belle Fourche  
Mgr: K L Arthur  
**MINE**, 30 mi W of Belle Fourche, surface, bentonite  
Prod: 1,000 tons  
**500-TON MILL**

**CONS FELDSPAR DEVELOPMENT CO**  
MINE & MILL, Keystone  
Supt: J W Mitchell  
**MINE**, Custer, feldspar  
**80-TON GRINDING MILL**  
Supt: R H Brigham  
(Arizona, Colo, Mont, Mex, Ky, Central, South & East)

**J K MINING CO**  
Custer  
Opr: J G Krabe  
**WHITE SPAR MINE**, 31 mi SE of Custer, pegmatite minerals

**JOHN ROSS MINE**  
Custer  
**MINE**, 6 mi NW of Custer, feldspar, mica, beryl, columbite  
Idle

**JOHNSON, A J & J E JURISCH**  
Keystone  
**PONCA MINE**, pegmatite minerals

**JUDSON, L W**  
Custer  
**NOVEMBER MINE**, 15 mi SE of Custer, pegmatite minerals

**KEYSTONE FELDSPAR & CHEM**  
230 W Huron St, Chicago, Ill  
**PEERLESS MINE**, near Keystone, pegmatite minerals  
Mgr: A F Walker

**KOCH, C K**  
Custer  
**SKY ROCKET MINE**, 7 mi SE of Custer, pegmatite minerals

**LITHIUM CORP OF AMERICA**  
Rand Tower, Minneapolis, Minn  
Pres: K M Leute  
**WHITE CAP & EDISON MINES**, Box 62, Rapid City, near Keystone, pegmatite minerals, spodumene  
Mgr: Fremont Clarke

**MAYWOOD CHEM CO**  
Hunter Ave,  
Maywood, New Jersey  
**WOOD MINE**, Keystone, spodumene  
**TIN MINE**  
Mgr: Dewey Peterson

**MCDERMOND, DALE**  
Custer  
**ORVILLE SPAR MINE**, 4 1/2 mi N of Custer, pegmatite minerals

**MCLAUGHLIN & PHELPS**  
Custer  
**TIP TOP MINE**, near Custer, pegmatite minerals

**McroBBIE, ROBERT**  
Custer  
**DALMON MINE**, pegmatite minerals

**MICHAUD & STRATTON**  
Custer  
**HORSESHOE LODGE MINE**, pegmatite minerals

**MINERALS MILLS, INC**  
Custer  
Pres: Albert Gushurst  
Sec & Gen Mgr: A I Johnson  
**OLD MIKE & GLENWOOD MINES**, 4 mi NW of Custer, underground & surface, mica, beryl, feldspar, tantalite  
Under devel  
Prod: 100 tons  
**100-TON CRUSHING & SCREENING PL**, at Old Mike Mine

**MONARCH MINES, INC**  
Custer  
**C N NELSON - ANN & FITZGERALD MINES**, 4 1/2 mi SE of Custer, pegmatite minerals

**NATL LEAD CO**  
**BAROID SALES DIV**  
Belle Fourche  
**BENTONITE PITS**  
Supt: D K Rowand  
Engr: C G Scott  
(See Calif, Nev, Tex, Central & East)

**NEFF, JOE**  
Custer  
**FROZEN FOOT MINE**, pegmatite minerals

**NUNEZ, HENRY J**  
Custer  
**RAY MINE**, 7 mi SW of Custer, pegmatite minerals

**PARKER, CLANCY**  
Custer  
**OTHER PROSPECT MINE**  
**PULMAN #2 & #4 MINES**  
**WILDWOOD MINE**, near Custer, pegmatite minerals

**PATTERSON, CLAIR**  
Keystone  
MINE, pegmatite minerals

**PENNINGTON, JACK, JR**  
Keystone  
MINE, 1 mi E of Keystone,  
pegmatite minerals

**PETERSON, HOWARD L**  
Keystone  
GOLD STAR MINE, near Keystone,  
pegmatite minerals

**PHELPS, JOHN**  
Custer  
MINE, pegmatite minerals

**PINKERTON, R W & CO**  
Custer  
R W PINKERTON & VICTORY MINES,  
4 mi E of Custer, pegmatite minerals

**PORTER, DANIEL O**  
Custer  
PROSPECT MINE, 4 mi NE of  
Custer, pegmatite minerals

**MONT HUMPHRIES MINE**  
Custer  
MINE, pegmatite minerals

**REFINITE CORP, THE**  
Box 1312, Omaha, Nebraska  
Pres: W H Ostenberg, Jr  
VP: G F Lindig  
VP & Gen Mgr: C A Spaulding  
MINE, Ardmore, surface, bentonite  
Supt: W F Rainey  
Prod: 20 tons per year

**ROSEBERRY & MARTIN**  
Custer  
REDBIRD MINE, 20 mi SE of  
Custer, pegmatite minerals

**ROSEBERRY, CARL**  
Custer  
TOPSITE MINE, 3 1/2 mi SE of  
Custer, pegmatite minerals  
HUB MINE, 4 mi SE of Custer,  
pegmatite minerals

**ROSEBERRY, JOHN**  
Custer  
PARK MINE, 4 1/2 mi N of Custer,  
pegmatite minerals  
WEEKER MINE, 10 mi NE of Custer,  
pegmatite minerals  
TRIANGLE MINE, 3 mi SE of Custer,  
pegmatite minerals

**SAGDALENE, BALDWIN**  
Keystone  
PINE CR LODGE, near Keystone,  
pegmatite minerals

**SCHULTZ, LOUIS**  
Custer  
PROSPECT LODGE, near Custer,  
pegmatite minerals  
Idle

**SCOTT'S ROSE QUARTZ CO**  
Custer  
Ngr: Frank S Scott  
RED ROSE & MOUNTAIN ROSE  
MINES, near Custer, pegmatite  
minerals

**SEARS, LAWRENCE A**  
Keystone  
MINE, pegmatite minerals

**SHINDELBOWER, HENRY**  
Custer  
WINTER WAYSIDE MINE, 5 mi E  
of Custer, pegmatite minerals

**SOUTHERN HILLS MINES, INC**  
Keystone  
JUNIPER MINE, Keystone, Au, Ag

**SPILDE, NORMAN**  
Custer  
BLUE BONNET MINE, 4 1/2 mi SE of  
Custer, pegmatite minerals

**SPRING, KENNETH**  
Custer  
MINE, pegmatite minerals

**STRATTON, LEWIS**  
Custer  
MINE, pegmatite minerals

**TILLOTSON, OTTO & LINN**  
Prospect  
ELECTION MINE, near Custer,  
pegmatite minerals

**TOWNSEND, HOWARD**  
Custer  
MINE, pegmatite minerals

**WATSON & CANFIELD**  
Keystone  
PHYLLIS MINE, near Keystone,  
pegmatite minerals  
Mgr: Basil Canfield

**WEIHE, CARL**  
Custer  
MINE, pegmatite minerals

**WELLS, GLADYS**  
Custer  
MINE, pegmatite minerals

**WESTERN BELL LODGE**  
Rt 2, Box 86, Custer  
Owners: Murphy & Nelson  
MINE, Au  
Idle

**WOOD, ERNEST H**  
Keystone  
MINE, 7 mi E of Keystone,  
pegmatite minerals

**WRIGHT, W W**  
Custer  
MINE, Custer Co

**ZURICH & FLATHERS**  
Keystone  
MINE, near Keystone,  
pegmatite minerals  
Idle

**AMERICAN SMELTING & REFINING CO**  
Box 1311, El Paso  
Mgr, SW Dept: Ben D Roberts  
Asst Mgr: R E Shinkoskey  
Mech Engr: J W English  
Safety Engr: W C Cunningham  
Purch Agt: W R Cook  
RETORT SMELTER, Amarillo, Zn  
Prod: 56,500 tons per year  
Ngr: E J Bruderdin  
EL PASO SMELTING WORKS, 2 mi N  
of El Paso, Pb, Cu smelting & con-  
verting, Zn fuming  
Prod: 250,000 tons per year  
REFINERY, Corpus Christi, elec Zn  
Prod: 30,000 tons per year  
Ngr: C N Waterman  
(See Ariz, Colo, Calif, Idaho, Mont,  
New Mex, Utah, Wash, Central & East)

**AMERICAN ZINC CO OF ILLINOIS, SUBSID OF AMERICAN ZINC, LEAD & SMLG CO**  
Box 377, Dumas  
VP & Gen Mgr: R A Young  
MACHOVEC SMELTER, Zn  
Bus Mgr: W E Smith  
Purch Agt: W G Hollifield  
(See Amer Zinc-III, Central, Amer Zinc-  
Tenn, South, American ZL&S, Washing-  
ton & Central)

**BENNETT - CLARK CO, INC**  
Nacogdoches  
Pres: G F Clark  
MINE, surface, bleaching clays

**CARPENTER EXPLOR CO**  
Box 657, Van Horn  
Pres: F H Carpenter  
VP: Mrs F H Carpenter  
Secy: R Edmunson  
Gen Mgr: W L de Carbonel  
PURPLE SAGE, PLATA VERDE &  
SPILLER MINES, 32 mi SW of Van  
Horn, undgrnd, Pb, Zn, Ag, Cu  
Under devel

**CELOTX CORP, THE**  
HAMLIN DIV  
120 S La Salle St, Chicago 3, Ill  
MINE & MILL, Fisher Co, Texas,  
surface, gypsum

**CERTAIN - TEED PROD CORP**  
Acme  
MINES, underground, gypsum  
(See Lake Superior & Central)

**CONSOL CHEM INDUS, INC**  
640 Mollie Esperson Bldg, Houston 2  
Pres: George L Bond  
VP: C W Mitchell  
Sec: R L Berryman  
Gen Mgr: E S Rothrock  
Asst Gen Mgr: C M Hickey  
Met & Geol: S M Stelling  
Purch Agt: W G Roberts  
(See Central)

## TEXAS

**D'ARGON MINING CO**  
Box 657, Sierra Blanca  
MINES, Sierra Blanca dist, Pb, Zn  
Under devel

**DRUNZER, M F**  
Van Horn  
MINE, Hudspeth Co, Cu  
Idle

**DRUNZER & STUMBERG**  
Van Horn  
MINE, Hudspeth Co, Cu, Ag  
Idle

**DUVAL SULPHUR & POTASH CO**  
1120 Esperson Bldg, Houston 2  
Pres: F G Zoffman  
VP & Treas: Eugene German  
Sec: V J Thornhill  
Gen Mgr: W P Morris  
Purch Agt: J R Smith  
ORCHARD MINE, 2 mi SE of Orchard,  
sulphur  
Gen Supt: J O Tyree  
(See New Mexico)

**ESPERADO MINING CO**  
Box 1037, Houston  
MINE, Brewster Co, Hg  
Idle

**FARNSWORTH, THELMA**  
Presidio  
SILVER DOME MINE, Presidio Co,  
Ag, Pb  
Idle

**FREEPORT SULPHUR CO**  
1804 American Bank Bldg,  
New Orleans 5, La  
Pres: L M Williams Jr  
VP & Gen Mgr: E D Wingfield  
Purch Agt: S L Mayo  
SULPHUR MINE, Freeport  
Gen Supt: E H McFarland  
SULPHUR MINE, Hoskins Mound  
Gen Supt: G C McMillen

**HAZEL MINE & MILLING CO**  
c/o A P Williams, Van Horn  
MINE, Culbertson Co, Cu, Ag  
Idle

**JEFFERSON LAKE SULPHUR CO**  
1408 Whitney Bldg, New Orleans 12, La  
CLEMONS DIME MINE, Brazoria Co,  
Texas, S

**LONE STAR STEEL CO**  
4501 W Mockingbird Lane, P O Box  
8087, Dallas 5  
Pres: E B Germany  
Exec VP: W H Johnson  
VP, Oper: W R Bond  
VP, Research: L G Graper  
Sec: E S Greer  
Asst Mgr, Oper: T M Hart  
Purch Dir: G C Graves  
Works Engr: D B Hooser  
Elec Engr: J S Scaff  
Geol: John J Reiff  
Mech Engr: L J Hoffman  
LONE STAR MINE, 130 mi E of Dallas,  
Lone Star, surface, Fe  
Prod: 10,000 net tons  
Div Supt: W L Kendrick  
Mine Supt: M J Hughes  
10,000-TON GRAY MILL  
Mill Supt: A C Melting  
BLAST FURNACE  
Capacity: 732,000,000 lbs per year  
Supt: F G Stark  
Asst Supt: S G Anderson

**MID - CONTINENT MUD CO**  
Pandale  
BARITE MINE, Val Verde Co  
Idle

**MILWHITE COMPANY**  
Box 15038, Houston  
Pres: Max B Miller, Jr  
Exec VP: F A Frank  
VP: A B Willis  
PRODUCERS OF bleaching clays, in-  
secticide, diluents, barite, celestite &  
talc

**NATIONAL GYPSUM COMPANY**  
Rotan  
QUARRY & PLANT, 6 mi N of Rotan,  
surface, gypsum  
Prod: 900 tons  
Mine Supt: T W Smith  
Plant Mgr: J E Irwin  
(See Lake Superior, Central, South & East)

**NATIONAL LEAD CO, BAROID SALES DIV**  
2404 Danville St, Houston 6  
Gen Mgr: G L Ratcliffe  
Asst Gen Mgrs: G B Coale & Hofstetter  
Prod: Reginald Rowand  
MINE, Houston, surface, bentonite  
DRY GRINDING MILL  
Supt: R J Penrose

**TEXARKANA PLANT, Texarkana, Ark**  
well chemicals, dry grinding  
Supt: J A Smith  
DRY GRINDING MILL, Corpus Christi,  
barite  
Supt: D M Middleton  
(See Calif, So Dak, Nev, Texas, Wyo,  
Central & East)

**NATIONAL LEAD CO, TEXAS MINING & SMELTING DIV**  
Box 559, Laredo  
Mgr: J C Archibald, Jr  
Asst Compt: Claude Noten  
Ch Chem: Ridel Gonzales  
REVERB & BLAST FURNACES,  
FUMING PL, Highway 81, N Laredo  
Plant Supt: R L Kulpaka  
(See Calif, So Dak, Nev, Wyo, Central  
& East)

**NEYLAND, O L**  
1450 W Magnolia Ave, San Antonio  
GYPSUM QUARRY, Gillespie Co, Texas  
Idle

**PECOS ORLA SULPHUR CO, INC**  
Orla  
Pres & Gen Mgr: P L Meath, 702  
Franklin St, Houston  
MICHIGAN CLAIMS in Orla, surface  
Mine & Mill Supt: S C S Lewis  
Prod: 1,500 tons

**PHELPS DODGE REFINING CORP, SUBSID OF PHELPS DODGE CORP**  
Box 1372, El Paso  
Pres: Walter C Bennett  
VPs: Cleveland E Dodge, J P Dyer,  
Howard Barkell & C S Harloff  
Sec & Counsel: Julian B Beatty  
Compt: J Mills Hawkins  
Asst Compt: Raymond Soden  
Treas: M W Urquhart  
Asst Treasurers: H R Dobbs, R D  
Barnhart  
ELEC COPPER REFINERY, COPPER  
SULPHATE PLANT, also NiSO<sub>4</sub>, Se,  
Te, & ZnSO<sub>4</sub>  
Work Mgr: William Knowles  
Prod: 240,000 tons per year

**SOUTHWESTERN GRAPHITE CO**  
Burnet  
Pres: George W Clemson  
VP: Robert P Miller, Sr  
VP & Gen Mgr: R P Miller, Jr  
Sec-Treas: G Miller  
Supt: G E Hillard  
MINE, 11 mi NW of Burnet, surface,  
graphite  
Prod: 280 tons  
Mine Foreman: Pete Bibbes  
Ch Engr: D C Peacock  
280-TON FLOT MILL

**SOUTHWESTERN PORTLAND CEMENT CO**  
613 El Paso Natl Bank Bldg, El Paso  
GYPSUM QUARRY, Hudspeth Co

**SOUTHWESTERN TALC CORP**  
Llano  
Pres: Bertram Browne  
VP: J H Upton  
MINE, 25 mi SE of Llano, surface,  
talc & soapstone  
Prod: 80 tons  
Mine Supt: P C Mayes  
150-TON MILL, grinding  
Mill Supt: C T Pollard  
ROSSMAN MINE, 12 mi E of Sierra  
Blanca, surface, talc  
Prod: 80 tons  
Mine Supt: J E Stafford

**TEXAS GULF SULPHUR CO**  
Newgulf, Tex  
BOLING DIME MINE,  
Wharton Co, Tex, S

**TIN PROCESSING CORP**  
Box 1461, Texas City  
Ch of Bd: E Warfield  
Pres & Gen Mgr: A L Braake  
Exec Asst to Pres: H F van der Laan  
VP & Asst Gen Mgr: S P Lowe  
LONGHORN REVERB SMELTER, Sn  
Prod: 80,000,000 lbs of Sn,  
900,000 lbs of copan (Sn, Sb alloy)  
per year  
Purch Agt: A J McSain  
Gen Supt: J R Winn  
Supt Smelter: W L Follett  
Supt Experimental Dept: B D Weaver  
Ch Engr: W Vierling  
Ch Chem: H H White  
Supt, Roasting & Leaching: J W Boyle  
Supt Maintenance: B T Loooper  
Supt Ore Storage: M L Walker

**UNITED STATES GYPSUM CO**  
MINE at New Braunfels, Tex, surface,  
limestone

TWO MINES at Sweetwater, Tex., gypsum  
(See Calif., Colo., Mont., Nev., Utah, Wash., Lake Sup., Central, South & East)

## UTAH

**ALTA-HELENA M & M CO**  
Oper: Francis Coupens  
8126 S 155 W, Midvale  
MINE, Salt Lake Co., Ag, Cu

**ALTA UNITED MINES CO**  
22 E First South St., Salt Lake City  
MINE, Alta, Au, Ag, Cu, Pb, Zn, Fe, W

**AMERICAN FORK CONS MINES**  
405 Dooly Bldg., Salt Lake City  
Pres: H G Blumenthal  
VP: N J Nielsen  
Sec-Treas: W J Robertson  
Gen Supt: Leslie O Burnett  
BLUE ROCK MINE, 20 mi NE of Pleasant Grove, undgrnd, Ag, Pb

**AMERICAN GILSONITE CO**  
248 S Main, Salt Lake City  
Pres: E F Goodner  
Sec & Purch Agt: E H Oane  
MINE, Bonanza, gilsonite  
Supt: John H Baker  
Asst Supt: F Williams  
Prod: 250 tons

**AMERICAN METAL MNG CO**  
21 SW Temple St., Salt Lake City  
Pres & Gen Mgr: C S Woodward  
VP: Ben B Hall  
Sec: Louise M Orton  
Gen Supt: Frank Yancher  
Geol: Ray E Marsell  
AMERICAN METAL MINE, 25 mi E of Midvale, undgrnd, Au, Ag, Pb, Cu, Zn  
Under devel

**AMERICAN SMELTING & REFINING CO, UTAH DEPT**  
700 Pacific Natl Life Bldg., Salt Lake City  
SMELTING DEPT  
Gen Mgr, West Dept: E McL Tittmann  
Consult: W G Rouillard  
Ore Buyer: C R Fish  
Purch Agt: A R Worthen  
In Charge, H<sub>2</sub>SO<sub>4</sub> & Liquid SO<sub>2</sub>: R D Williams  
Consul Met: E P Fleming  
Consultant: W J O'Connor  
GARFIELD COPPER SMELTER, Garfield

Supt: R Thompson  
Asst Supt: E V Hardy  
MINING DEPT  
Gen Mgr, West Dept: D J Pope  
Ch Geol: W R Landwehr  
Mgr Oper: F V Richard  
Milling Engr: N Weiss  
Expl Engr: K Whiting  
MINE CLAIMS, Marysville dist, Pate Co, U, exploration & diamond drilling  
(See Ariz., Colo., Calif., Idaho, Mont., New Mex., Wash., Central & East)

**AMERICAN STAR**  
Newhouse Bldg., Salt Lake City  
Oper: Chief Cons Mng Co  
MINE, Juab Co., Au, Ag, Pb

**ANACONDA COPPER MNG CO**  
c/o Rom Warburton,  
821 Kearns Bldg., Salt Lake City  
APEX DELAWARE GROUP,  
Natl Tunnel Unit, Zn, Pb  
Idle

**ANCIENT RIVER CHANNELS GOLD MNG CO**  
Suite 1, Corner Bldg., Las Vegas, Nev  
Pres: Thomas H Berry  
VP & Sec: William T Berry  
Gen Supt: Rex F Smith  
Geol: Dr F W Christensen  
Contractor: Chell Dalton  
MINERAL HILLS MINE, Marysville, 2 mi NE of Marysville, U  
Under devel

**APEX & LIBERTY BELL**  
Owner: Skoro Cons M & M Co  
Sec: Donald K Seitz  
501 Jefferson St., Boise, Ida  
MINE, Box Elder Co., Au, Ag, Pb

**ARTESE & JOHNSON**  
Enterprise  
CLAIMS, 9 mi S of Enterprise, surface, Fe  
Under devel

**B W & H GOLD & SILVER MNG CO**  
Richfield  
Pres: T R Giedhill  
Sec-Treas: O J Christensen  
B W & H MINE, Sevier Co., Au, Ag

**BAILEY, LEROY J**  
Beryl Junction  
MINE, Iron Co., nitrate

**BEAVER CREEK MNG CO**  
c/o Blaine F Thorpe  
90 N Second E, Springville  
UTAH SILVER, LUCKY STRIKE & CHUCK GROUPS (EAST PARK), Summit Co., Ag, Pb  
Under devel

**BEAVER GOLD & COPPER CO**  
3611 Lime Ave., Long Beach 7, Calif  
Pres: J A McMullen  
VP: A W Bimrose, Sr  
Sec: Joseph D Hurd  
BEAVER MINE, Milford, 10 mi NW of Milford, undgrnd, Cu, Pb, Ag  
Idle

**BEAVER VIEW MINE**  
Adamsville  
Owner: Morgan Evans  
MINE, Beaver Co., 5 mi N of Adamsville, Au, Ag, Pb, Zn  
Idle  
(Leased to R W Glenn & Assoc)

**BLACKHAWK NO 1**  
143 W Cottage Ave., Sandy  
Oper: C J & A J Collett  
MINE, Bluebell dist, Pb

**BLUE EAGLE MNG CO**  
192 S Second St West, Tootle  
Mgr: L S Gillett  
BLUE EAGLE #1, 2, 3, Tootle Co., Zn, Pb, Ag  
Under devel

**BONNEVILLE, LTD**  
340 W 7th South St., Salt Lake City 4  
Pres: W L Bradley  
Gen Mgr: L W Ferris  
Purch Agt: W R Thomas  
MINE, Wendover, RCI  
1,000-TON FLOT MILL  
Mine & Mill Supt: B B Lamus  
Asst Mine & Mill Supt: Jesse Ecton  
Mill Foreman: Rands Wiley  
Mine Foreman: Nelson Lamus  
Met: D C Hunter  
Assay: Clyde Andrew

**BORNITE #1, 2, 3, 4 & MEADOW FLOWER**  
Owner: Ophelia McCoy  
2857 North Ave., Grand Junction, Colo  
Oper: Ray Yeager & George S Michener  
MINES, Grand Co., Ag, Cu

**BRUSH BERYLLIUM CO**  
Cleveland, Ohio  
MINES, Juab & Tootle Counties, Sheep Rock dist, Be

**BULLION MONARCH MNG CO, INC**  
216 Utah Oil Bldg., Salt Lake City  
Pres & Gen Mgr: Arch M Wackerli  
VP: Ross Corbett  
Sec: Robert N Cooper  
Geol: Joseph Beeson  
BULLION MONARCH MINE, Marysville, 5 mi NE of Marysville, undgrnd & surface, U  
Under devel  
Prod: 20 tons  
(Leased to Atherley Bros)

**CALERA MNG CO, SUBSID HOWE SOUND CO**  
Garfield  
Supt: W R McCormick  
Ch Acct: W E Taylor  
CHEM REDUC PL, Cu, Co  
(See Calera, Idaho; Howe Sound, Wash & East)

**CANNON PROPERTIES**  
Stockton  
Oper: Willis Smith  
MINE, Zn, Pb  
Idle

**CARBONATE HILL**  
Owner: Carbonate Hill Mng Co  
1st Security Bank Bldg., Ogden, Utah  
Oper: Bryant M & Don E Ure  
MINE, Morgan Co., Ag, Pb

**CARDIFF MNG & MLG CO**  
704 Newhouse Bldg., Salt Lake City  
Pres & Gen Mgr: L E Stein  
VP: M R Richards

Sec-Treas: R A Glenn  
CARDIFF MINE, near Alta, undgrnd, Au, Ag, Pb, Zn  
Supt: A G Kolovos

**CENTENNIAL-BECK-VICTORIA**  
Owner: U S Smelting Refining & Mining Co, Newhouse Bldg., Salt Lake City  
MINE, Juab Co., Ag, Pb

**CENTRAL STANDARD CONS MINES**  
392 E 900 South, Provo  
Pres: T F Pierpont  
VP: R G Pierpont  
Sec: M Gessford  
MINE, near Provo, Au, Ag, Pb  
Under devel

**CENTRAL SULTANA MNG CO**  
Mona  
Pres: Lucius Rowe  
Gen Mgr: Eugene Wilkey  
UNDERSIGHT MINE, Ag, Pb  
Idle

**CHARRITY GROUP**  
Owner: Hazel Murphy  
607 W Park St., Butte, Mont  
Oper: Elmer Jenkins  
MINE, Juab Co., Pb, Z

**CHEMICAL CORP OF AMERICA**  
Sulphurdale  
MINE, surface, S  
200-TON FLOT MILL  
Gen Supt: W D Maycock  
Cons Engr: C R King

**CHESLEY & BLACK**  
Delta  
FLUORINE QUEEN MINE, Delta, surface, CaF<sub>2</sub>  
Prod: 180 tons per week

**CHIEF CONS MNG CO**  
608 Dooly Bldg., Salt Lake City  
Pres: Cecil Fitch  
VP & Gen Mgr: Cecil Fitch, Jr  
Sec: W W Watson  
CHIEF #1, GEMINI, EUREKA HILL, PLUTUS & EAST CROWN POINT CONS MINES, Box 269, Eureka, shaft, Pb, Zn, Ag, Au  
Prod: 440 tons  
Ch Clk: M Carter  
Lime Pl Foreman: R E Steele  
Ch Elec: A D Baker  
Mast Mech: Sid Tregaskis  
Geol: Max Evans  
Engr: H J Pitts  
Foreman: L W Brady

**COLBATH, ALEX**  
Leeds  
SILVER REEF MINE, Leeds, undgrnd, U  
Under devel

**COLORADO CONS MINES CO**  
1114 Walker Bank Bldg., Salt Lake City  
Pres: H E Raddatz  
VP: Harriet D Travis  
Sec: Glen Hardy  
Gen Mgr: M D Paine  
COLORADO CONSOLIDATED MINE, Dividend, 2 mi SE of Eureka, undgrnd, Pb, Au, Ag, Cu  
Idle

**COLORADO FUEL & IRON CORP**  
Cedar City  
BLOWOUT MINE, surface, Fe  
Res Engr: R L Wahl  
(See Colo., Wyo)

**COLUMBIA IRON MINING CO, SUBSID U S STEEL CORP**  
Russ Building, San Francisco, Calif  
Pres: A G Roach  
VP: L S Dahl  
Sec: Thomas Ashby  
Gen Supt: G D MacDonald  
Mgr, Raw Mat Devel: H C Burrell  
Chf Engr: W F Pruden  
Dir, Empl Rel & Safety: C T Spivey  
Dir of Purch: H W Christensen  
MINES, Iron Mountain & Desert Mountain, Utah, 20 mi W of Cedar City, surface, Fe  
CRUSHING & SCREENING PLANTS  
(See U S Steel, Mont, Utah, Lake Superior, South & East)

**COLUMBUS REXALL CONS MINES CO**  
Alta  
Gen Mgr: A J Selander  
HASKELL CLAIM (Leased to

Sieve Rasta)  
REXALL MINE, RE, Fe, Pb, Zn, under devel

**COMBINED METAL REDUCTION CO**  
218 Felt Bldg (Box 111), Salt Lake City  
Pres & Gen Mgr: E H Oane  
VPs: Otto Herres & W J O'Connor  
Treas: O F Burton  
Sec: C M Christensen  
Purch Agt: E G Black  
Ch Engr: K K Hood  
Gen Supt: S E Craig  
CALUMET MINE, 6 mi NE of Thresh, undgrnd, Zn, Pb, Fe, Ag, Au  
Geol: E B Young  
Met Mgr: C E Burton  
Ch Chem: Harry Hays  
Mill Supt: Winford Hays  
700-TON FLOT MILL  
BUTTERFIELD MINE, 10 mi NE of Thresh, undgrnd, Pb, Zn, Ag, Au  
Mine Supt: R L Christensen  
HONORINE, GALENA & EUREKA, Tootle Co., Ag, Pb, Zn

**COMMONWEALTH LEAD MNG CO**  
424 Felt Bldg., Salt Lake City  
Pres & Gen Mgr: J F Featherstone  
VP: R E Gaff  
Sec: Dean R Featherstone  
Geol: R E Marsell  
CALVIN MINE, 7 mi E of Midvale, undgrnd, Pb, Ag  
Mine Foreman: Pete Marsell  
COMMODORE MINE, 10 mi NE of Stockton, undgrnd, Pb, Ag, Cu, Zn, under devel  
Geol: R E Marsell

**CONSOL EUREKA MNG CO**  
132 S Main St., Salt Lake City  
Pres: James E Hogle  
VP: J C Johnson  
Sec: L J Lerwill  
(See Nevada)

**CONS URANIUM MINES, INC**  
521 Felt Bldg., Salt Lake City  
Pres & Gen Mgr: E G Franks  
VP: Roy A Hardy  
Sec: C Allen Elggen  
TEMPLE MT MINE, 48 mi NE of Greenriver, undgrnd, U, V  
Prod: 125 tons  
Mine Supt: Gas Hokenes  
SINBAD MUDDY RIVER GROUP, U, V

**CONTINENTAL MNG & MLG CO**  
Greenriver  
MINES near Greenriver, U, V

**COPPER MOUNTAIN CO**  
Bama  
VP: Moses C Taylor  
COPPER MT MINE, near Laramie, Wyo  
Idle

**CUPRIC MINES CO**  
39 Exchange Place, Salt Lake City  
Pres: P H Hunt  
Gen Mgr: J G Sargent  
CACTUS & CUPRIC MINES, Milford, surface, Cu  
Idle

**DEER TRAIL MINES**  
Marysville  
Pres & Gen Mgr: John W Aulden  
VP: Dwight L King  
Gen Supt: Jay G Sylvester  
MINES, 4 mi N of Marysville, undgrnd, Ag, Au, Pb, Cu, Zn  
Under devel, producing

**DIXIE-APEX MINE**  
Owner: Emerald L Cox  
-130 South 100 East, St George  
Oper: Apex Mining Co & Kentucky-Utah Mng Co  
MINE, Tutsagbut dist, Wash Co., Ag, Pb, Cu

**DRAGON CONS MNG CO**  
Eureka  
Pres: F A Wardlaw, Jr  
VP: J J Lillie  
Sec: Rom Warburton  
Gen Supt: J F Dugan  
Geol: M B Kildale  
Purch Agt: T K Davis  
DRAGON MINE, 4 mi S of Eureka, undgrnd & surface, halloysite clay  
Mine Supt: L A Ryan  
Mine Engr: H C Thomas

**DUTCHMAN COAL MINES CO**  
1211 S Tremaine St., Los Angeles, Calif  
Pres: H W Holden  
DUTCHMAN GROUP, Zn, Pb  
Idle



**DYER MINE**  
Owner: C E Crafts, Hinckley  
Oper: L J Price  
MINE, Juab Co, Ag, Pb

**EAST STANDARD MNG CO**  
Eureka  
PROPERTIES near Marysville, U,  
idle

**EAST STANDARD MINE**, near  
Eureka, underground, Pb, Ag, idle

**EMMA MINE**  
Owner: Ray Rosebrough  
1761 South 5th East St,  
Salt Lake City  
Oper: N W Kalmar, Lehi  
MINE, Juab Co, Ag, Pb

**EMPIRE MINES CO**  
80 Kearns Bldg, Salt Lake City  
Sec-Treas: Rom Warburton  
EMPIRE GROUP, Juab Co, Au, Ag,  
idle

**ETNA GOLD MINES, INC**  
208 Beckley Bldg, Las Vegas, Nev  
MINE & MILL, 18 mi W of Modena  
idle

**EUREKA BULLION CO**  
Box 1079, Salt Lake City  
EUREKA BULLION MINE, Au  
idle  
(Leased to North Lilly Mng Co)

**EUREKA LILLY CONS  
MNG CO**  
114 Walker Bank Bldg,  
Salt Lake City  
Pres: H E Raddatz  
VP: Harriet D Travis  
Sec: Glen Hardy  
Gen Mgr: M D Paine  
EUREKA LILLY MINE, Dividend,  
underground, Au, Ag, Cu, Pb  
idle

**EUREKA STANDARD GROUP**  
Owner: Eureka-Standard Cons  
Mining Co  
114 Walker Bank Bldg,  
Salt Lake City  
MINE, Utah Co, Au, Ag, Cu, Pb  
idle

**EXCALIBUR URANIUM CORP**  
Bow Knot  
Mgr: Vance E Thornburg  
DANSIE GROUP, Green & Emery  
Counties, U, V

**FAUCETT, V W**  
Greenriver  
CAMP BIRD MINE, underground, U

**FLAGSTAFF BONANZA  
MNG CO**  
418 Main St, Park City  
Pres: Charles Moore  
MINE, Au, Ag, Pb, Cu  
idle  
(Leased from New Park Mng Co)

**FRISCO SILVER LEAD  
MNG CO**  
39 Exchange Place,  
Salt Lake City  
Pres: Paul H Hunt  
VP & Mgr: J G Sargent  
Sec: David H Bullough  
MINE, 25 mi W of Milford,  
underground  
idle

**G W B MINING CO**  
c/o Paul Gorlinski  
1032 First Ave, Salt Lake City  
REVEALATOR MINE, Ag, Pb  
Under devel  
(Leased to Byer Bros, Park City)

**GAGON, FRED & GENE**  
Roosevelt  
CLAIMS, Farm Cr, 30 mi N of  
Roosevelt, barite, Mn

**GARBETT, REUBEN**  
Box 128, Park City  
SILVER CREEK TAILINGS, Uintah  
dist, Summit Co, Zn, Pb, Cu

**GARFIELD CHEM & MFG  
CORP**  
Pacific Natl Life Bldg,  
Salt Lake City  
MINE, sulphuric acid

**GEORGIA LYNN**  
Belle  
Owner: Western Minerals, Inc  
Oper: Metals Production Co, Inc  
GEORGIA LYNN MINE, Tooele Co,  
Ag, Pb  
Under devel

**GODIVA MNG & MLG CO**  
c/o Rom Warburton  
820 Kearns Bldg, Salt Lake City  
Sec-Treas: A H McChrystal

**GORLINSKI & WHEELER,  
INC**  
200 Edison St, Salt Lake City  
Mgr: J H Wheeler  
SILVER KING WESTERN MINE,  
Summit Co, Pb

**GRAMLICH MINERALS, INC**  
Moab  
Pres & Gen Mgr: John W Gramlich, Sr  
VP & Asst Gen Mgr: John W Gramlich, Jr  
Sec: Philip F Gramlich  
Geol: Norman Ebbley  
VANURA MINE, Green River, 15 mi W  
of Green River, underground & surface,  
U, V  
Under devel, producing  
(See Colorado)

**HAMPTON MINING CO**  
Box 24, Stockton  
Pres: M Chamberlain  
Sec: Stanford R Mahoney  
ARCENT MINE, 3 mi E of Stockton,  
underground, Pb, Zn, Au, Ag  
Prod: 5 tons

**HENRY & McINTOSH**  
Marysville  
CLAIMS near Marysville, U

**HOOSIER MINES**  
Oper: T J Calvin & R J Beal  
Thompson  
Cecil R Woodman  
Gold Hill  
MINES, near Thompson, Cu,  
Gold Hill dist, W, under devel

**HORN SILVER MINES CO**  
39 Exchange Place, Salt Lake City  
Pres: P H Hunt  
Gen Mgr: J G Sargent  
Sec-Treas: D H Bullough  
HORN SILVER MINE, Milford,  
Au, Ag, Pb, Zn  
(Leased to Metal Producers, Inc)

**HOWELL MINING CO**  
529 Newhouse Bldg,  
Salt Lake City  
Pres: Rich Whitmore  
Sec: B B Hall  
Gen Mgr: H E Havenor  
YANKEE MINE, GLOBE MINE, near  
American Fork, undgrnd, Zn, Pb, Ag, Cu,  
idle

**YELLOW CANARY CLAIMS**, near  
Marysville, U, under devel

**IBEX GOLD MINING CO**  
Box 37, Provo  
Pres: J William Knight  
Sec: Leon Newren  
IBEX, KEYSTONE, MARSHA, E P H &  
ALTO MINES, 35 mi NW of Delta,  
underground, Cu, Au  
idle

**INDEX-DALEY MINES CO**  
21 SW Temple St, Salt Lake City  
Pres & Gen Mgr: Charles S Woodward  
VP: Glen A Finlayson  
Sec: R W Edmunds  
DALEY MINE, Mountain Home,  
24 mi NE of Mountain Home  
Exploration  
Mine Foreman: George A Rich

**INTERNATL SMELTING &  
REFINING CO, A SUBSID  
OF ANACONDA COPPER  
MNG CO**  
818 Kearns Bldg, Salt Lake City  
Gen Mgr: Utah Oper: F A Wardlaw, Jr  
Mng Supt: J F Dugan  
Met Mgr: B L Sackett  
Purch Agt: T K Davis  
MILL & SMELTERS near Tooele  
Gen Supt: Carlos Bardwell  
Mech Engr: R E Long  
Safety Engr: T K Voyer  
Ch Chem: H T Goodjohn  
1,300-TON FLOT MILL, International,  
Zn, concentrate  
Prod: 10,000 tons per year  
Supt: R V Kettner  
Met: George Kostello  
SMELTER & REFINERY,  
International  
Prod: 80,000,000 lbs Pb per year  
3,800,000 lbs Cu per year  
39,275,000 lbs zinc oxide &  
(See Ariz & East) sulphide per year

**KENNECOTT COPPER CORP,  
UTAH COPPER DIV**  
Box 1650, Salt Lake City  
Gen Mgr, West Mng Div:  
Louis Buchman  
Gen Mgr, Utah Copper Div:  
L F Pett  
Asst Gen Mgr: E W Englemann  
Asst to Gen Mgr: J K Richardson  
Dir, Ind Rel: D C Houston  
Dir, Lab Rel: J A Norden, Jr  
Dir, Pub Rel: N W Aldrich  
Div Compt: G A Soutter

Ch SL Acct: L J Farrer  
Ch Mine Acct: S W Jacques  
Ch Mill Acct: E J Gardner  
Storekeeper, Mills: J W Ridd  
Storekeeper, Mines: A J Bohrer  
Ch Engr: L C Jones  
Asst Ch Engr: A Soderberg  
Pl Engr: G A Parker  
Mast Mech, Miner: G W Holman  
Gen Mast Mech, Mills: A J  
Fitzgerald  
Mast Mech, Mills: L Baldee  
CENTRAL POWER STATION,  
Garfield  
Supt: L S Hills  
Gen Foreman: J W Richardson  
Roadmaster: B C Davis  
Traffic Mgr: F B Merrill  
BINGHAM MINE, Bingham Canyon,  
surface, Cu, Mo, Au, Ag  
Prod: Approx 93,000 tons  
Gen Supt: J C Landenberger, Jr  
Mine Supt: V S Barlow  
Gen Foreman: E C Simkins  
Empl Dir: L O Hamlin  
Safety Engr: G W Knudsen  
MAGNA SELEC FLOT MILL &  
ARTHUR SELEC FLOT MILL,  
Garfield  
Gen Supt: P H Ensign  
Supt, Magna: John Allan  
Asst Supt, Magna: T Barker, Jr  
Supt, Arthur: C G Quigley  
Asst Supt, Arthur: F M Barton  
Empl Dir: M A Moffat  
Ch Elec Engr: R J Corfield  
Safety Engr: R L Erickson  
Ch Met Engr: A G Johnson  
Ch Res Chem: C M Notes, Jr  
Ch Anal Chem: V A Fraser  
GARFIELD REFINERY, Garfield  
Supt: H A Shaw  
Asst Supt: K H Koropp  
Met Engr: C A Zeldin  
Plant Elec: I G Salisbury  
Mast Mech: F Johnson  
GARFIELD WATER CO & GARFIELD  
IMPROVEMENT CO, Garfield  
Supt: H C Anderson  
(See Ariz, Nev, New Mex & East)

**KING DAVID MINING CO**  
39 Exchange Place, Salt Lake City  
Pres: P H Hunt  
Gen Mgr: J G Sargent  
Sec-Treas: D H Bullough  
KING DAVID MINE, Milford,  
Ag, Cu, Pb, Zn  
Under devel

**KING MANGANESE CORP**  
Kanab  
MINE, 35 mi E of Kanab in Kane  
Co, Mn

**KING OF THE WEST MINE**  
915 Continental Bank Bldg,  
Salt Lake City  
Owner: Lawrence Fox  
MINE, 30 mi W of Ketchum, Ida,  
underground, Pb, Zn, Ag  
idle

**LAKEVIEW MINING CO**  
c/o Utah Const Co,  
1st Natl Bank Bldg, Ogden  
Oper: W W Jacobson  
1876 E Osage Orange, Holladay  
LAKEVIEW CARBONATE MINES  
#1, 2, Box Elder Co, Z, Pb

**LEAD PRINCE**  
162 So 8th East, Salt Lake City  
Owner: Royal Ute M Co  
Sec-Treas: A R W Hintze  
LEAD PRINCE MINE, Tooele Co,  
Ag, Pb  
Under devel

**LILE BROS**  
Box 382, Moab  
Pres: H D Lile  
Dir: Glenn Lile  
POLAR MESA MINES, 55 mi NE  
of Moab, underground, U, V  
Prod: 500 tons per month

**LITTLE ALTA MNG CO**  
Duchesne  
Sec: Sylvia Mecham  
LITTLE ALTA MINES #1, 2, 3, 4  
idle

**LOTTIE R GROUP**  
Owner: William B Allinson,  
Eureka  
MINE, Tooele Co, Ag, Pb  
Under devel

**LOVELESS & STAHLEI**  
c/o W J Loveless, Payson  
VAGABOND MINE, Mount Nebo,  
Mono dist, Juab Co, Pb  
Under devel

**M & M LEAD MNG CO**  
Fillmore  
Sec: Morris Hunter  
M & M LEAD MINE, Millard Co,  
Pb, Zn  
Under devel

**MADISON MINES CO**  
518 Wasatch Oil Bldg,  
Salt Lake City  
Pres & Gen Mgr: Nicholas  
Morgan, Jr  
MADISON MINE, Stockton,  
underground, Au, Ag, Pb, Zn, Cu  
idle

**MAGNOLIA LEAD & OIL CO**  
c/o C W Anderson, Mantu  
Sec-Treas: K C Griffith  
JOHN HENRY CLAIMS near  
Marysville, U  
OPEN PIT MINES, Emery Co, U

**MAJOR METALS MINING CO**  
342 Canyon Rd, Logan  
Pres & Gen Mgr: H C Hansen  
VP: E Stettler  
BLUE MOON MINE, 3 mi E of Hyrum,  
underground & surface, Zn  
idle

**McFARLAND & HULLINGER**  
322 Pinehurst Ave, Tooele  
HIDDEN TREASURE MINE, Ophir  
dist, Zn, Pb, Cu  
ONTARIO DUMP, Summit Co,  
Au, Ag, Pb  
Supt: K L Erickson, Box 388,  
Park City

**METAL PRODUCERS INC**  
Milford  
Pres: G W Clemson  
VP: Otis Burch  
Sec-Treas: R M Landrum  
HORN SILVER MINE, 16 mi W of  
Milford, undgrnd, Pb, Zn, Ag, Au  
Prod: 100 tons  
Gen Mgr: D C Peacock  
Gen Supt: J P Lowe  
Foreman: Tony Lerotich  
400-TON FLOT MILL, 4 mi W of  
Milford  
Supt: R V Thompson  
Foreman: Geo Bush

**METALS COALITION MINE**  
825 S 10th East St, Salt Lake City  
Pres: Leo Peterson  
Gen Mgr: E H McCauley  
Sec: J M Calderwood  
MINE, underground & surface,  
Au, Ag, Cu, Pb, Fe, W, Mo  
Under devel  
Foreman: E N McCauley

**MINERAL VALLEY GOLD MNG**  
815 First Security Bank Bldg,  
Salt Lake City  
Treas: Russell Cavin  
AMASA GROUP, placer  
idle

**MONO-KEARSARGE CONS MNG**  
209 Atlas Bldg, Salt Lake City  
Pres: Alonzo MacKay  
MONO-KEARSARGE GROUP, Tooele Co  
(Leased to U S Smelting, Refining &  
Mining Co)

**MONOCCO MINING CO**  
c/o W C Card  
3081 S State St, Salt Lake City  
MONOCCO MINE, Tooele Co, Ag, Pb  
idle

**MONTEZUMA MINES CO**  
Monticello  
Pres: F A Sittion  
MINE, near Monticello, Ra, U, V

**MORENO-CRIPPLE CR  
CORP**  
405 Interstate Trust Bldg,  
Denver 2, Colo  
Pres & Gen Mgr: R A Bennett  
VP: H W Halsey  
PROPERTIES, Moab, U  
Under devel

**MT MINES CO**  
21 SW Temple St,  
Salt Lake City  
Pres & Gen Mgr: C S Woodward  
Sec: R W Edmunds  
MINE near Alta, Au, Ag, Pb, Zn,  
Cu, Fe  
Under devel  
Engr: G A Finlayson  
Geol: R E Marsell

**MT VIEW MINING CO**  
821 Kearns Bldg,  
Salt Lake City  
Sec: Rom Warburton  
MT VIEW GROUP, Utah Co,  
Ag, Au, Pb, Zn  
idle

**NASH & ADAMSON**  
Box 77, RFD, American Fork  
FLORAL LODGE, Utah Co, Zn, Pb, Ag  
Under devel

**NEW ECLIPSE, LUCKY**  
**THREE #1, 2**  
Owners: Walter W Smith,  
Vergil C Fox, Gerald E Detar  
& Alex M Stewart  
5611 Highland Dr, Salt Lake City  
MINES, Tooele Co, Ag, Pb

**NEW MAJESTIC MNG CO**  
207 Atlas Bldg, Salt Lake City  
Treas: R H Barton  
HARRINGTON-HICKORY GROUP,  
near Milford, Pb, Ag, Zn  
(Leased to Harrington Mines Co)

**NEW PARK MINING CO**  
Keetley  
Pres & Gen Mgr: W H H Cranmer  
VP: Clark L Wilson  
Sec: Robert L Cranmer  
Gen Supt: Peter Joralemon  
Geol: Walter E Bauer  
Mech Engr: H L Berry  
Assayer: H P Walch  
Purch Agt: Carl D Harper  
MINE, underground, Au, Ag, Cu, Pb, Zn  
Asst Mine Supt: George Cloward  
Mine Foreman: William A Mair  
Mine Engr: F A Kuhlman

**NEW QUINCY MINING CO**  
Felt Bldg, Salt Lake City  
Sec: Mr Crandall  
JIC MINE & W QUINCY MINE,  
Snake dist, Wasatch Co, Zn, Pb, Ag

**NORTH LILY MINING CO**  
820 Kearns Bldg, Salt Lake City  
Sec-Treas: Rom Warburton  
NORTH LILY MINE, Utah Co, Pb, Zn  
idle  
TINTIC BULLION MINE, Utah Co,  
Zn, Pb, Au, Ag, idle

**NORTH STANDARD MNG CO**  
237 N 4th West, Provo  
UNITED METALS MINES, Box  
Elder Co, Pb  
idle

**O K LEAD MINE**  
Owner: W L Dewitt, Mona  
MINE, Juab Co, Ag, Pb  
Under devel

**OPHIR DEVELOP CO**  
Ophir  
Pres & Mgr: D C Gilbert  
MINE, Ophir, Cu, Pb, Zn, Ag  
Under devel  
(Leased to U S Smelting, Refining  
& Mining Co)

**ORO DEL REY**  
2035 S 17th East, Salt Lake City  
Pres: Alma Tripp  
ORO DEL REY MINE, 7 mi W of  
Callao, Tooele Co, underground,  
Au, Pb, Ag, Cu  
Under devel  
Engr: A B Tripp

**PAGE MINE**  
Owner: Duke Page, Spanish Fork  
Oper: D J Garrick, 440 S 8th East,  
Provo  
MINE, Juab Co, Ag, Pb

**PARK CITY CONS MINES CO**  
623 Eccles Bldg, Ogden  
Pres: C V Stehie  
VP & Sec: J A Howell  
Gen Mgr: John Kasteler  
PARK CITY CONS MINE, Park City,  
underground, Ag, Pb, Zn  
idle

**PARK FLAG MINES CO**  
608 Walker Bank Bldg,  
Salt Lake City  
Pres: Dewitt Van Evera  
Sec-Treas: L G Kelly  
MINE, Park City, Au, Ag, Pb, Zn  
Under devel

**PARK UTAH CONS MINES CO**  
1003 Continental Bank Bldg,  
Salt Lake City  
Pres: Lawrence Fox  
VP & Gen Mgr: P H Hunt  
Sec-Treas: J W Stoner  
Gen Supts: G S Krueger & H C Wallace  
PARK CITY, DALY & ONTARIO MINES,  
3 mi SE & SW of Park City, undergrd,  
Pb, Ag, Zn  
Prod: 4-5,000 tons per month  
Geol: E A Hewitt  
Engr: Harry Dappler  
Mech Engr: P O Reynolds  
Elec Engr: David Thompson  
Safety Engr: C W McCullough

**PENN UTAH MINING CO**  
Milford  
Gen Mgr: A M Bealer  
O K MINE, Milford, Au, Ag, Cu

**PLATEAU MNG CO**  
Moab  
Supt: Melvin C Bowles  
YELLOW CIRCLE MINE, 12 mi  
E of Moab, U  
Under devel

**PLUMBIC MINES CO**  
39 Exchange Bldg, Salt Lake City  
Pres: P H Hunt  
Sec: D H Bullough  
Mgr: J G Sargent  
JEEPSTER MINE, Marysvale,  
underground, U  
PROPERTIES, Beaver Co, Pb, Zn  
idle

**PRIVATEER MINING CO**  
Box 111, Provo  
Pres: C C Jenkins  
Sec: Leon Newren  
EVA MINE, 5 mi E of Mona,  
underground, Pb, Zn, Ag  
idle

**PROSPER DEVEL & HOLDING CO**  
Milford  
Pres & Gen Mgr: A M Bealer  
VP: John Van Dyke  
Gen Supt: L B Chulski  
OLD HICKORY HARDROCK MINE,  
surface, Au, Ag, Cu, W, Fe  
Under devel  
Supt: Gotfrid Peterson  
Engr: Karl Hutchins  
100-TON FLOT MILL  
Assay: Dearson & Nichols

**RAINBOW GOLD MINES**  
**CORP OF DELAWARE**  
Marysvale  
Pres: Louis C Deluke  
COPPER BELT MINE, Piute  
Co, Au, Ag, Cu

**RAVEN MNG CO OF UTAH**  
Roosevelt  
Pres & Gen Mgr: F C Ferron  
VP & Gen Supt: R A Ferron  
PARLETTE MINE, 12 mi S of Myton,  
underground, gilsonite  
Foreman: Ralph McMullin  
E B MINE, 45 mi SE of Vernal,  
underground, gilsonite  
Foreman: Richard O'Neill

**REALTY COMPANY, THE**  
937 Natl Bank Bldg, Dever 2, Colo  
Pres: Chandler Weaver  
VP & Gen Mgr: Ray A Bennett  
Sec: L D Allen  
LUCKY STRIKE MINE, c/o Harold  
Esker, Loa, Henry Mountains,  
Garfield Co, underground, U  
Prod: 20 tons  
(See Colorado)

**RED CANYON MINES**  
Owner: Red Canyon Mines Partner-  
ship Donald T Adams, Preston Redd,  
Ozro Hunt, & J Wiley Redd,  
Partners Monticello, Utah  
MINES, San Juan County, uranium  
Under devel

**ROBINSON, JOSH**  
Fillmore  
GALENA MINE, Millard Co, Pb  
Under devel

**ROYSTON COALITION MINES**  
Marysvale  
Sec-Treas: R A Glenn  
LUCKY STRIKE & KENNEDY GRPS,  
Marysvale, U  
Under devel

**SCHEELITE QUEEN MINE**  
Spanish Fork, W  
Mgr: Duke Page

**SHEEP TRAIL MINE**  
Bapah  
Mgr: S H Nicholas  
MINE, Ag, Pb  
idle

**SHOWERS GROUP**  
26 Ambassador Court, Salt Lake  
City  
Owner: Showers Standard M Co  
Sec: W R Walker  
Lessee: D J Garrick  
SHOWERS GROUP MINE, Juab Co,  
Ag, Pb

**SHUMWAY, GLEN & LEE**  
Moab  
SHAY MTN MINE, San Juan County,  
uranium

**SILVER BELL MINES CO**  
Thompson  
MINE, Grand Co, U  
(See Colorado)

**SILVER HORN MINING CO**  
1024 1st Ave, Salt Lake City 3  
Pres: W H Sprunt  
Gen Mgr: L B Glafke  
MINE, undgrnd, surface, Au, Ag, Cu,  
Pb  
idle

**SILVER KING COALITION**  
**MINE**  
1010 Kearns Bldg, Salt Lake City  
Pres: T F Kearns  
VP & Gen Mgr: James Ivers  
Mgr of Oper: M G Heitzman  
SILVER KING MINE, Park City,  
underground, Au, Ag, Cu, Pb, Zn  
800-TON FLOT MILL  
idle

**SILVER LEAF MINING CO**  
1919 Yale Ave, Salt Lake City  
Pres: M A Bourne  
SILVER LEAF MINE, American  
Fork dist, Utah Co, Zn, Pb, Ag  
Under devel

**SILVER STAR MINING CO**  
Adamsville  
Mgr: M Evans  
BEAVER VIEW MINE, Au, Ag, Pb,  
Zn, W  
Supt: Bob Glenn  
Asst Supt: W H Evans  
Foreman: Scot Cuttler

**J R SIMPLOT CO, INC**  
Pocatello, Idaho  
Gen Mgr: George McHugh  
MINE, Temple Mtn dist, Wayne &  
Garfield Counties, uranium  
Under devel  
(See Idaho)

**SIOUX, DUNYS**  
1114 Walker Bank Bldg, Salt Lake  
City  
Owner: Sioux Mines Co  
Auditor: Glen Hardy  
SIOUX MINES, Utah County, Au, Ag

**SNOW, KENNETH**  
Jensen  
CLAIMS, 7 mi E of Jensen, U  
Under devel

**SOUTH FORK MINING CO**  
2705 S 20th East, Salt Lake City  
Sec: W Malmberg  
CRESCENT SILVER, SNOWDRIFT &  
STORM KING GROUPS, Pb, Ag  
Under devel

**SPIDER URANIUM MINING CO**  
Callao  
Partners: McAfee, Bertelson,  
Thomas, & Baur  
CLAIMS near Callao, U  
Under devel

**SPOR, G P, & SONS**  
Delta  
FLUORIDE MINE, Delta, underground  
& surface, CaF<sub>2</sub>  
Under devel

**STANSBURY CONS MINING CO**  
Box 804, Grantsville  
Pres: E C Berry  
VP & Supt: C D Bennett  
Sec: R C Gehrig  
MINE, Ag, Cu, Pb, Zn, Fe  
Under devel

**STAR DUST MINES, INC**  
283 E So Temple, Salt Lake City  
Pres & Gen Mgr: Fred Cook  
VP: Blake Probert  
Sec: Mer Vell Cook  
MINE, 2 mi W of Gold Hill, under-  
ground & surface, W  
Under devel, producing

**SUNNYSIDE URANIUM CO**  
Marysvale  
Gen Mgr: Lane J Bertelsen  
Mech Engr: Grant A Nielsen  
BUDDY MINE, 5 mi NE of Marysvale,  
underground, U  
Under devel  
Mine Foreman: Carl Norton

**SUNSHINE MINE**  
Delta  
Owners: R J Law & Frank Law  
SUNSHINE MINE, Millard Co, Cu

**TINTIC LEAD CO, SUBSID OF**  
**HORN SILVER MINES CO**  
39 Exchange Place, Salt Lake City  
Pres: P H Hunt  
VP & Mgr: J G Sargent  
Sec-Treas: D H Bullough  
MINE, Milford, Au, Ag, Pb  
(Leased)

**TINTIC STANDARD MNG CO**  
1114 Walker Bank Bldg, Salt Lake City  
Pres: H E Raddatz  
VP: Roy M Jacobs

Gen Mgr: M D  
Sec: Glen Hard  
TINTIC STANDARD  
MINES, Divident  
Pb, CaF<sub>2</sub>  
COLGAR MINE,  
undgrnd, Pb, Ag, Cu, Zn, CaF<sub>2</sub>  
idle

**TREASURE HILL MINES CO**  
510 Felt Bldg, Salt Lake City  
Pres: O W Moore  
SHOO FLY-THAD  
Au, Ag, Cu, Pb  
Under devel  
Mgr: G D Wakefield  
Supt: F D Saylor

**TUSHAR GROUP**  
924 Harrison Ave, Oakland City,  
California  
Owner: The Tushar Mines, Inc  
Pres: C E Sherman  
Oper: R A Glenn  
Salt Lake City  
TUSHAR GROUP MINE, Park Co,  
Ag, Cu

**UNITED MINERALS CORP**  
518 Felt Bldg, Salt Lake City  
Pres & Gen Mgr: G W Snyder &  
VPs: G W Snyder, R A Covey &  
H C Orton  
Sec: Guy Synder  
Purch Agt: M Dued  
Geol: M C Godbe  
Ch Engr: H A Covey  
(See Ariz, Idaho & Nev Listings)

**UNITED MINING & DEVEL CO**  
Salt Lake City  
Pres: O H Evans  
IDA, DESERT VIEW, BLACKHAWK  
MINES & SIMPSON MT MINES,  
Erickson dist, Au, Ag, Pb, Zn, BaF<sub>2</sub>  
Supt: Jack Morse  
50-TON GRAV MILL

**UNITED STATES GYPSUM CO**  
GYPSUM MINE, Nephi, underground  
GYPSUM MINE, Sigard, surface  
(See Calif, Colo, Mont, Nev, Texas,  
Wash, Lake Sup, Central, South & East)

**UNITED STATES SMELTING**  
**REFINING & MINING CO**  
**WESTERN OPERATIONS**  
Newhouse Bldg (Box 1080), Salt  
Lake City 10  
VP & Gen Mgr, West Oper: W C  
Page  
Asst Gen Mgr, West Oper: O A  
Glaeser  
Asst to VP & Gen Mgr, West Oper:  
B E Grant  
Mgr, West Mines: A G Kirwin  
Asst to Mgr, West Mines: N S  
DuBois  
Mgr, Midvale Pl: H L Johnson  
VP & Ch Geol: R S Hunt  
Mgr, U S Stores Dept: C A Jones  
Indus Devel Dir: J M Eubank  
Indus Devel Engr: Boris Ashland  
Consul Mill Mee: R A Pihlman  
UTAH OPERATIONS  
US & LARK MINE, Bingham dist,  
Pb, Zn, Cu  
Gen Supt: Benton Boyd  
Supt, U S Sec: John Holmes  
Supt, Lark Sec: Harold Wells  
MIDVALE PL, FLOT MILL & LEO  
SMEL  
Gen Supt: C A Nelson  
Mill Supt: A A Nelson  
(See Alaska, Arizona, New Mexico &  
East)

**U S STEEL COMPANY,**  
**COLUMBIA-GENEVA DIV**  
Russ Bldg, San Francisco, Calif  
VP & Mgr: L J Westhaver  
Gen Supt: L F Black  
BLAST FURNACE, Geneva, near  
Provo  
(See Lake Superior, South & East)

**U S VANADIUM COMPANY**  
MINES & LEASES, Grand & San  
Juan Counties, U, V  
CRUSHING & SAMPLING STATES,  
Thompson, U, V  
(See Colorado)

**UTAH GALENA OIL CORP**  
184 E 5th North, Provo  
Pres & Gen Mgr: B H Bullock  
VP & Gen Mgr: B V Bullock  
Sec-Treas: J W Boswell  
MINE, 6 mi N of Eureka, undgrnd  
Geols: G H Hansen & Kenneth  
Bullock

**UTAH MINE COMPANY**  
47 E So Temple St, Salt Lake City  
Pres: Henry D Moyle  
Sec: Joseph L Wirthlin  
UTAH MINE GROUP, Fair Spring  
dist, SW of Salt Lake City, undgrnd

Ag. 100  
(Lease) John E Fritch, Park City)

**VANADUM CORP OF AMER**  
Malheur  
Gen Mgr: D W Viles, Durango,  
Colo  
**PRODUCER & FREEDOM MINES,**  
Malheur, underground, U  
Mines: R L Anderson  
Asst. Mine Supt: William Wittmeyer  
MINE, White Canyon near Hite  
Supt: A Maxwell  
**PLANT, White Canyon, Cu, U**  
Supt: Leroy Parker  
(See Ariz, Colo, New Mex & East)

**VICTOR CONS MINING CO**  
820 Kearns Bldg, Salt Lake City  
Sec-Treas: Rom Warburton  
**VICTOR GROUP, Juab Co, Au, Ag**  
Idle

**VITRO CHEMICAL CO**  
Salt Lake City  
V Pres: George White  
**URANIUM-VANADIUM processing**  
plant

**WARD LEASING CO**  
1096 Princeton, Salt Lake City  
Pres & Gen Mgr: L N Rasmussen  
**BLACK BOY MINE, Joy, Mn, CaF<sub>2</sub>**  
Supt: L J Price  
Engrs: Frank Walthall & H R Fisher

**WASATCH MINES CO**  
21 Stick & Exchange, Salt Lake City  
Sec & Gen Mgr: A J Selander  
**FLAGSTAFF & WASATCH MINE,**  
Alta, Au, Ag, Cu, Pb

**WEST PARK MINING CO**  
Box 111, Provo  
Pres: J H Petersen  
VP: O W Johnson  
Gen Mgr: A H Scott  
Sec & Purch Agt: Leon Newren  
**WEST PARK MINE, 2 mi S of**  
**Brigham & 8 mi NW of Midway,**  
underground, Cu, Au, Ag  
Under devel  
Prod: 8 tons  
Mine Supt: A H Scott

**WEST UTAH**  
935 South 7th East, Salt Lake City  
Owner: Earl T Milham  
**WEST UTAH MINE, Juab Co, Ag, Pb**  
Under devel

**WESTERN GYPSUM CO**  
Salt Lake City  
Pres: S H Eliason  
Gen Mgr: R D Hess  
Purch Agt: E L Hildebrand  
**MINE, Sigurd, surface, gypsum**  
Prod: 400 tons

**WHITE CANYON URANIUM CO**  
Hite  
**WHITE CANYON URANIUM CO MINE,**  
San Juan County, uranium  
Under devel

**WORTLEY, G W**  
Bountiful  
**ATKINSON TAILINGS, Summit Co,**  
Pb, Ag  
**WORTLEY, GILMORE & PACIFIC**  
**BRIDGE TAILINGS**  
**CRESCENT SIDE DUMP**

**YANKEE CONS MINING CO**  
821 Kearns Bldg, Salt Lake City  
Sec-Treas: Rom Warburton  
**YANKEE MINE, Utah Co, Au, Ag,**  
Cu, Pb, Zn  
Idle

## WASHINGTON

**AAVESTUD & WELLER**  
Box 385, Coulee City  
**KELLY CAMP MINE, Ferry Co, W**  
Under devel

**ACE OF DIAMONDS**  
Cle Elum  
Opr: Clarence Jordan  
**MINE, Swank Cr dist, Kittitas**  
Co, Au, Ag

**ADMIRAL CONSOL MNG CO**  
409 American Legion Bldg,  
Spokane  
Pres: O L Hood

VP: J L S Bennett  
Sec: W C Hawes  
**MINE, 1 mi N of Leadpoint, under-**  
**ground, Zn, Pb, Ag**  
**60-TON FLOT MILL**  
Mill Supt: K A Akers

**ALDER GOLD COPPER CO**  
403 Realty Bldg, Spokane  
Pres: E Royce  
VP: J L Magney  
Sec: R K Magney  
**ALDER MINE, Twisp, underground,**  
**Au, Ag, Cu, Zn**  
Prod: 300 tons  
Mgr: Harvey F Stone  
Mine Supt: Earl M Cooper  
**300-TON FLOT MILL**  
Met: F A Sharp

**AMERICAN CHROME &**  
**MAGNESIUM INDUSTRIES,**  
INC  
1101 Terminal Bldg, Seattle  
Pres: A H Wild  
**CHROME PLANT, Anacortes**

**AMERICAN GRAPHITE**  
**METALS**  
Box 123, Yakima  
Pres: A E Patnode  
VP: L W Donaldson  
Gen Mgr & Purch Agt: E R Thoma  
Supt: F B Satterlee  
**MINE, Omak, flake graphite,**  
**Pb, Zn, Ag, Au, Sb**  
**100-TON GRAV FLOT MILL**  
Under devel

**AMERICAN SMELTING &**  
**REFINING CO**  
**VANSTONE MINE, Box 262,**  
**Colville, surface, Zn, Pb**  
Supt: P A Lewis  
Mine Foreman: Frank Paparich  
Mine Engr: Ralph Stuve  
Ch Clerk: George Moad  
Asst Clerk: Fred Harding  
**1,000-FLOT MILL**  
Mill Supt: Robert A Blake  
Asst Mill Supt: R Kenneth McCallum  
Met: Lyle Hallberg  
Assayer: Wilson Tooke  
Master Mech: Arthur Knight  
**TACOMA SMELTER, Box 1605,**  
**Tacoma, copper smelter,**  
**electrolytic refinery, arsenic**  
**refinery & acid pl**  
Gen Mgr: E R Marble  
Asst Mgr: G E Sigler  
Gen Supt: P T Benson  
Purch Agt: J F Vogel  
(See Ariz, Colo, Calif, Idaho,  
Mont, New Mex, Utah, Central  
& East)

**AMERICAN ZINC, LEAD**  
**& SMELTING CO**  
927 Old Natl Bank Bldg,  
Spokane  
Western Mgr: D I Hayes  
Gen Supt: John W Currie  
Met: Delos Underwood  
West Geol: H F Mills  
Elec Engr: R A Skeman  
Purch Agt: R F Tharp  
**GRANDVIEW MINE, Metaline Falls,**  
**underground, Pb, Zn**  
Prod: 835 tons  
Mine Supt: C L Sage  
Mine Foreman: Otis Hagberg  
Asst Mine Foreman: Clarence Sage  
Mine Engr: Theodore Becker  
Master Mech: Roy B Gilbert  
**835-TON FLOT MILL**  
Mill Supt: Homer P March  
(See American Zinc-III, American Zinc-  
Tenn; American ZLS, Texas & Central)

**ANACONDA COPPER MNG CO**  
Box 69, Colville  
**BONANZA MINE, 18 mi N of Colville,**  
**underground, Pb**  
Under devel  
Mine Supt: Winton L Seymour  
Mine Foreman: Lewis J Sells  
**70-TON FLOT MILL, Palmers Siding**  
(See Calif, Nev, Mont, Ida, Utah & East)

**BALTIMORE MINES, INC**  
131 Nickerson St, Seattle  
Chairman: Ralph A Younklin  
Pres: Lester Tibbets  
VP: Lester A Lough  
Sec-Treas: J E Runk  
Gen Mgr & Purch Agt: E R Carlisle  
**BALTIMORE MINE near Mazama,**  
**underground, Au, Ag**  
Idle

**BEAR BASIN MNG CO, INC**  
841 N Callow Ave, Bremerton  
Pres & Gen Mgr: James R Crippen  
VP: Edwin R Saurers  
Sec: Donald A Serry  
**BEAR BASIN MINE, North Bend,**  
**24 mi NE of North Bend, undergrd,**  
**Ag, Cu, Pb, Sb, Au**  
**FLOT MILL**  
Idle

**BIG DOME MINING CO**  
822 W 70th St, Seattle  
Sec-Treas: Wm Petroborg  
**MINE, Kittitas Co, Cu, W**  
Idle

**BLACK WARRIOR MNG CO**  
1329 Old Natl Bank Bldg, Spokane  
Pres: Frank Funkhouser  
Sec: Robert A Ganes, Jr  
Treas: Edward D Giesinger  
**BLACK WARRIOR MINE, Chelan Co,**  
**underground, Pb, Zn, Cu, Ag**  
Under devel

**BLISS, WALTER S**  
Orient  
**KETTLE RIVER PROPERTY,**  
**Stevens Co, Pb, Zn, Cu**  
Idle

**BONANZA LEAD CO**  
Box 111, Colville  
Owners: E B Gibbs, I M Hunley  
**OLD DOMINION & BONANZA MINES**  
**70-TON FLOT MILL (Operated by**  
**Anaconda Copper Mining Co)**  
**YOUNG AMERICA MINE (See Young**  
**America Mines, Inc)**

**CAELTON MINING CO**  
Leavenworth  
**POLE PICK MINE, Chelan Co,**  
**Au, Ag, Pb, Cu, under devel**  
(Leased from Gold Bond Mng Co)  
**40-TON GRAV MILL**  
**OLYMPIA MINE, Peshastin Cr**  
**dist, Chelan Co, Au, Ag**

**CASCADE MINING CO, INC**  
Box 79, Skykomish  
Pres & Gen Mgr: Henry E Trenk  
VP: Arthur Becker  
Sec: William Sheldon  
**ACES-UP MINE, 8 mi SW of**  
**Skykomish, undergrd, Ag, Pb, Sb**  
Under devel

**CHEWALAH COPPER CO**  
Chewalah  
**UNITED COPPER MINE, Stevens Co, Cu**

**CHINOOK MINING CO**  
c/o H C Lawson, R R 1, Prosser  
Partners: O Smalley & H C Lawson  
**TIP-TOP MINE, undergrd, Au, Ag, Cu**  
Idle

**COLE, ROBERT J**  
803 E Prospect St, Seattle 2  
**LOVE JACK MINE, 20 mi NE of**  
**Glacier, underground, Au, Ag**  
Under devel

**COLUMBIA LEAD & ZINC**  
**MNG CO**  
S 702 Washington, Spokane  
Pres & Gen Mgr: Robert P Wallis  
VP: R Maurice Cooper  
Sec: H S Johnston  
**MINE, 8 mi N of Metaline Falls, Pb, Zn**  
Under devel

**COLUMBIA TUNGSTEN CORP**  
Cedonia  
**MINE near Cedonia, undergrd, W**  
Under devel

**COMSTOCK MINE**  
Orient  
Pres: A G Schroeder  
**CROSS LEED & IRON MASK**  
**CLAIMS, Stevens Co, underground,**  
**Ag, Pb, Cu, Zn, Au**  
Under devel

**CONSOL MINES & SMELTING**  
**CO, LTD**  
Box 66, Kenmore  
Pres & Gen Mgr: O B Brown  
Sec-Treas: D N Gellatly  
**THREE PROPERTIES at Keller,**  
**Ferry Co, undergrd & surface,**  
**Zn, Au, Cu**  
Under devel

**CONSOL SPECULATOR CORP**  
E 1425 40th Ave, Spokane  
Pres: Joseph M Zoldok  
VP & Gen Mgr: Stephen W Zoldok  
**LUCILLE & RED TOP MINES, 2 mi**  
**N of Leadpoint, undergrd, Zn, Pb, Ag, Cd**  
(Leased to Pacific NW Mng Co,  
which see)

**DAVIDSON, ROY & LEE**  
**WOODS**  
Box 348, Colville  
**GALENA KNOB PROPERTY,**  
**Stevens Co, Pb, Ag**  
Idle

**DEAN, JAMES P**  
Rt 4, Box 276, Olympia  
**FRISCO STANDARD MINE,**  
**Stevens Co, Ag, Cu, Pb**  
Idle

**DEER TRAIL MINES**  
Fruitland  
Lessee: MacSlate, Albany, Ore  
**UNDERGROUND MINE, Ag, Pb**  
**FLOT MILL**  
Under devel

**ELECTRIC POINT MINE**  
Northport  
Oprers: Harris & Rungarner  
**MINE, Northport dist, Stevens Co,**  
**Pb, Zn**

**FLAG HILL MINES CORP**  
Rt 10, Box 760, Olympia  
Pres: Henry Skinner  
VP: Glenn Ross  
Sec-Treas: W R McDougall  
Dir: H C Skinner  
Dir: A H Blocher  
**MINE, Republic, undergrd, Au, Ag,**  
idle  
Foreman: GH Thayer  
**SCALAWAG & C O CLAIMS,**  
**Au, Ag, under devel**

**GERMANIA CONSOL**  
**MINES, INC**  
401 Empire State Bldg,  
Spokane 1  
Pres: Julius A Franz  
VP: Henry Franz  
Sec-Treas: E I Fisher  
Gen Mgr: H G Loop  
**GERMANIA CONSOL MINE,**  
**Box 45, Hunters, 15 mi from**  
**Hunters, underground, W**  
Supt: H W Traver  
Prod: 40 tons  
**GERMANIA CONSOL MILL,**  
**40-ton grav-float**

**GLADSTONE MT MNG CO**  
202 Radio Central Bldg,  
Spokane  
Lessee: W L Clearwaters  
Pres: J S Ramage  
VP & Mgr: W J Nicholls  
Sec-Treas: K M Nicholls  
**GLADSTONE MINE at Leadpoint,**  
**Pb, Ag**

**GOLD BOND MINING**  
514 Columbia Bldg, Spokane 8  
Pres & Gen Mgr: Frank Lilly  
VP: H D Hackney  
Sec-Treas: F W Kiestling  
Dir: S L Engard, Jr &  
B G Honner  
**POLE PICK & OLYMPIA MINES,**  
**Ag, Cu, Au**  
Under devel  
**500-TON FLOT MILL**

**GOLDEN ARROW MINE**  
Box 155, Twisp  
**MINE, 45 mi NW of Twisp,**  
**underground, Au, Ag**  
Under devel

**GOLDFIELD CONSOL**  
**MINES CO**  
Box 2520 or 206 N Virginia St,  
Reno, Nevada  
**ANDERSON MINE, Stevens Co,**  
**surface, Pb, Zn**  
**DEEP CREEK MINE, Zn, Pb, Ag, Cu**  
Res Mgr: T Higginbotham, Colville  
**SIERRA ZINC MINE, Zn, Pb**  
**225-TON FLOT MILL**  
(See Calif & Nevada)

**GRANDVIEW MINES**  
310-311 Radio Central Bldg,  
Spokane 4  
Pres & Gen Mgr: Karl W Jasper  
VP: Paul Hoetzel  
Sec: E K Barnes  
Geol: Eskil Anderson  
**GRANDVIEW MINES, 100 mi N**  
**of Spokane, undergrd, Zn, Pb**  
Prod: 750 tons  
**FLOT MILL**  
(Leased to Amer Zinc, Lead &  
Smelting Co, which see)

**GREY EAGLE MINE**  
Box 411, Chesaw  
Oprers: Phillips & Bagwell  
**MINE, Myers Cr & Mary Ann Cr**  
**dist, Okanogan Co, Au, Ag**

**H & H MINES, INC**  
S 18 Stone St, Spokane  
Pres: L J Burrows  
VP: J L McLaughlin  
Sec-Treas: R S McClintock  
Gen Mgr: W J Noon  
(See Mont & Nevada)

**HIDDEN TREASURE MINE**  
c/o Norman D Lindsley  
Box 452, Chelan  
**MINE, Au, Ag, Cu, Pb**  
Idle



**HIGHLAND MNG & MLG CO**  
1008 S Sprague St, Tacoma  
Pres & Mgr: M Siabodnik  
Sec-Treas: V O Barkley  
MINE, Squaw Cr dist, Au, Zn  
Idle

**HORSESHOE BASIN MNG & DEVEL**  
245 4th St Bldg, Bremerton  
Pres & Gen Mgr: M A Morrison  
MINE, Chelan Co at Stehekin,  
underground, Au, Ag, Cu, Pb, Zn, W  
Under devel  
Foreman: Ray Sherwood  
Engr: Dale Joliffe  
50-TON FLOT MILL

**HOUGLAND, EVERETT & I G**  
Republic  
VALLEY MINE, 10 mi N of  
Republic, underground, Au, Ag  
Idle

**HOWE SOUND CO, CHELAN DIV**  
Holden  
Pres: H H Sharp  
VP: E Richter  
Sec: W T Holmes  
HOLDEN MINE, underground,  
Cu, Au, Zn, Ag  
Prod: 2,000 tons  
Mine Supt: W S Phillips  
Mine Foreman: C L Hicks  
Mine Engr: J M Newman  
2,000-TON FLOT MILL  
Mill Supt: J S Mitchell  
Met: M DeFoe  
Assayer: J L Lafrenz

**IMPERIAL MINE**  
Mazama  
Oper: Mahlon McCain & Stewart  
MINE, Okanogan Co, Au, Ag, Cu  
Idle

**INDEX MINING CO**  
2430 Monte Vista Pl,  
Seattle 99  
Mgr: C V Brennan, Jr  
SUNSET COPPER MINE,  
Snohomish Co, 67 mi NE of  
Seattle, undergrd, Au, Ag, Cu,  
explor  
150-TON FLOT MILL

**JIM CREEK MINES, INC**  
Ione  
JIM CREEK MINE, 6 mi NW of  
Ione, underground, Pb, Ag, Zn  
Under devel  
40-TON MILL

**JOHNSBURG MNG & MLG CO**  
Mount Vernon  
Pres: C O Davis  
MINE, Skagit Co, Ag, Pb  
Idle

**JOHNSON, CLYNE J**  
Wawawai  
WAWAWAI PLACER, Snake Riv  
dist, Garfield Co, Au, Ag  
(Leased to S H Bowers, Moscow, Ida)

**KAABA SILVER LEAD MINES**  
612 Arcade Bldg, Seattle  
Pres: A W Webster  
KAABA MINE, Nighthawk,  
underground, Ag, Cu, Pb, Zn  
Gen Mgr: L B Carroll  
Supt: Arthur Peterson  
300-TON SINK FLOT MILL  
Prod: 275 tons

**KEEGAN MINING CO**  
1st & Mission Sts, Wenatchee  
Owner: J J Keegan  
GOLD KING MINE, Au, Ag  
(Leased to Lovitt Mng Co, Inc)  
CYAN FLOT MILL  
MINES at Entiat, Riverside,  
Wenatchee, dolomite, silica sands  
(Owned by Keegan Bros)  
Foreman: Wm Savage

**KETTLE RIVER CONSOL MINES**  
Box 12, Cowiche  
Pres: H S Radenmacher  
VP: A D Strand  
Sec-Treas: A N Christensen  
F H & C MINES, SWAMP KING,  
PRINCE ALBERT & MONT-WASH  
MINES, 7 mi NE of Orient  
Under devel

**KEY WEST COPPER MINE**  
Deer Park  
Oper: W H West  
MINE, Loon Lake dist, Stevens Co, Cu

**KIMBERLY GOLD MINES, INC**  
4010 N 10th, Tacoma  
Pres: Oak T Otis  
VP: F P Webber

Sec: Loren F Denbrook  
Dirs: Charles C Guilford,  
S G Reiman, G L Mittermaier  
& A V Johnson  
(See Idaho)

**KNOB HILL MINES, INC**  
206 Sansome St, San Francisco, Calif  
Pres & Gen Mgr: H N Kuechler, Jr  
VP: C L Cooper  
Sec: D D Farley  
Treas: L E Heilar  
Gen Supt: A R Patterson  
KNOB HILL & MT LION MINES,  
Republic, underground, Au, Ag  
Supt: J E Davis  
Foreman: H W Marsh  
Engr: T L Pittman  
400-TON FLOT MILL, cyanidation  
of tailings  
Supt: Louis Lembeck  
Assay: A J Fergus

**KROMONA MINES CORP**  
721 Lloyd Bldg, Seattle  
Pres & Gen Mgr: J F Krom  
VP: J F Brand  
Sec-Treas: George Wizer  
KROMONA MINE, 18 mi NE of  
Sultan, Snohomish Co, Au, Ag, Cu, Mo  
Under devel  
100-TON FLOT MILL

**LAKE SERENE MNG CO, INC**  
Snoqualmie  
Pres: Frank Waugaman  
VP: Hector Brown  
Sec-Treas: Mrs Hazel Waugaman  
WILBUR-INDEX MINE, 3 mi S of  
Index, underground, Ag, Cu  
Idle

**LASOTA, F P**  
Metaline Falls  
BROMIDE MINE, Pend Oreille  
Co, Ag  
Idle

**LAST CHANCE CONSOL MINES**  
405 Realty Bldg, Spokane  
Pres: W E Gullen, Sr  
Gen Mgr: J L Magney  
Sec & Purch Agt: R K Magney  
Treas: K H Blaesser  
LAST CHANCE, GREAT WESTERN &  
BLACK ROCK MINES, Northport,  
Pb, Ag, Zn  
Under devel  
Asst Supt: Arthur Magney  
60-TON FLOT GRAV MILL

**LAUCKS CHEMICAL CO**  
1008 Western Ave, Seattle  
Pres: J T Laucks  
VP: R W Cool  
Sec: J E Hefflerline  
Purch Agt: B White  
TONASKET DIV MINE, 6 mi NW  
of Tonasket, surface, gypsum &  
epsom salts  
Prod: 150 tons

**LEAD POINT ELEC MNG CO**  
1373 W Compton Blvd,  
Compton, Calif  
ELEC POINT MINE, Stevens Co, Ag, Pb  
240-TON GRAV MILL, idle

**LEAD TRUST MINE**  
508 Norfolk Bldg, Spokane  
Oper: Felix J Cardinal  
MINE, 2 1/2 mi SE of Leadpoint,  
surface, Pb, under devel  
50-TON GRAV MILL, under constr

**LITTLE NOISY PROSPECT**  
Ione  
Owners: Boswick & Krantz  
MINE, undergrd, Au, Ag, Pb, Zn, W

**LONE STAR LEASE**  
Conconully  
Gen Mgr: T D French  
MINE, Pb, Zn, Ag  
Idle

**LONE STAR MINE**  
Marama  
Owner & Mgr: Tom Luke  
MINE, Au, Ag  
Idle

**LOVITT MNG CO, INC**  
Box 1668, Wenatchee  
Pres & Gen Mgr: E H Lovitt  
VP: Vere McDowall  
Geol: Dr A C Skerl  
Purch Agt: Dave Morvee  
GOLDEN KING, 3 mi S of  
Wenatchee, undergrd, Au, Ag  
Prod: 150 tons  
Mine Supt: Dan Winans

**LUCKY BOY MINE**  
Springdale  
Owner: C F Allen  
MINE, Ag, Cu  
Idle

**LUCKY STRIKE MINE**  
Loon Lake  
Oper: William E Curtis  
MINE, Metaline dist, Pend  
d'Oreille Co, Pb

**MAGNUSEN, FRED**  
Index  
BROKEN RIDGE PROP,  
Snohomish Co, Cu, Ag, Au  
Idle

**MEADOW CREEK MNG CO**  
727 Waverly Place, Spokane  
Pres: D A Munroe  
Sec-Treas: Mrs Wayne Richards  
MINE, Ferry Co, Cu, Ag, Au, Mo  
Mgr: Wayne Richards

**METALINE CONTACT MINES, INC**  
c/o Therrett Towles  
Old Natl Bank Bldg, Spokane  
Pres: Stanley A Easton  
VP: L J Randall  
Sec: Therrett Towles  
MINE, 1 1/2 mi S of Metaline Falls,  
underground, Zn, Pb  
Under devel  
Mine Supt: Clive Tedrow

**METALINE MNG & LEASING CO**  
310 Radio Central Bldg,  
Spokane  
Pres: Karl W Jasper  
VP: E P Ryan  
Sec: E K Barnes  
Asst Sec: Mae C Hamilton  
MINE, Metaline Falls, 100 mi N  
of Spokane, Pb, Zn  
Explor  
Mine Supt: Clive Tedrow  
250-TON FLOT MILL  
(Leased to Sullivan Mng Co)

**MILTON & HATHAWAY**  
Box 41, Curlew  
GOOSMUS CR PLACER, Ferry Co, Au  
Idle

**MINERAL CENTER MNG CO, INC**  
1605 28th Ave, Seattle 22  
Pres: D R Harting  
VPs: C T Fezney, E R Neighbor  
Sec: P R Sorensen  
Treas: B S Hewitt  
MINERAL CENTER MINE, NE of  
Index, Silver Cr dist, Cu, Pb, Zn,  
Au, Ag  
Idle

**MINES MANAGEMENT, INC**  
Northport  
Pres & Gen Mgr: W R Green  
VP & Treas: W T Anderson  
Sec: L Howe  
ADVANCE MINE, 6 mi S of Northport,  
underground, Zn, Pb, Ag, under devel  
IRQUOIS MINE, 3 mi NE of Leadpoint,  
underground, Zn, Pb, Ag, under devel  
Mine Supt: R S Williams  
Geol: P E Oscarson  
70-TON FLOT MILL

**MODERN GOLD DREDGING CO**  
Regis, Mont  
Mgr: Lee Eller  
MINE, Au  
Idle

**MOONLIGHT MINING CO**  
Tuttle Main Serv Station, Colville  
Pres: A E Wilkerson  
MORNING MINE, Northport dist,  
Stevens Co, Zn, Pb, Ag  
Idle

**MULLEN, ELMER**  
Chewelah  
MONTGOMERY PROSPECT,  
Chewelah dist, Pb, Zn, Cu, Ag, Au  
Idle

**NFW YORK-ALASKA GOLD DREDGING CORP**  
1616 Smith Tower, Seattle  
Pres: J K Crowley  
VP: G G C King  
Res Mgr: William H Race  
Asst Mgr: M F Bailey  
Sec: Mark Mathewson  
Elec Engr: Clarence Clark  
Purch Agt: L E Robbins  
(See Alaska & East)

**NORTHPORT MNG & DEVEL CO**  
1321 W 6th, Olympia  
Pres: F Marcove  
VP: Charles Wells  
Sec-Treas: A E Hankins  
FRISCO STANDARD MINE,  
near Ione, Ag, Cu  
Idle

**NORTHWEST MARBLE MINE**  
Chewelah  
Pres: E A Garber  
VP: C A Sargent  
Sec: J C Stivers  
Gen Mgr: H A Ziegler  
Plant Supt: Verdie  
Elec Engr: G J Mitchell  
Plant Engr: Gene  
Purch Agt: L A Knapp  
RED MARBLE MINE, 1 mi SE  
of Chewelah, surface, magnesite  
Mine Supt: Roger L  
Nine Foremen: L. G. King, J. G. King,  
Nine Engrs: Barney Tedrow, J. G. King,  
FINCH QUARRY, 2 mi SE of Chewelah  
Mill Supt: Ted Morley  
Mill Foreman: Miller

**OLYMPIC MINE**  
Leavenworth  
Oper: J D St George  
MINE, Peshastin Cr dist, Chelan  
Co, Au, Ag

**OLSON, CARROLL S**  
Box 324, Orient  
BLUE MT MINE, Ferry Co, Pb, Zn  
Idle

**ORIENT-EUREKA MINE**  
Orient  
Gen Mgr: H C Topping  
MINE, 6 mi N of Orient, Ag, Ag,  
Pb, Zn

**PACIFIC MINING CO, INC**  
642 Central Bldg, Seattle 4  
Pres & Gen Mgr: G B Kennedy  
VP: C A Shadel  
PACIFIC MNG CO, 14 mi N of  
Deer Park, underground, W  
GRAV MILL  
Geol: Albert Hale  
Assay: Willis Ott

**PACIFIC MUTUAL SILVER LEAD CO**  
Box 1805, Spokane  
Pres: C A Lyon  
VP: M C Yeager  
Sec-Treas & Gen Mgr: C A Gray  
ADDISON MINE, 11 mi SE of  
Keller, Ag, Pb, Zn, W  
Under devel  
Engr: B O Goodsell

**PACIFIC NORTHWEST ALLOYS**  
Mead  
Pres: Leo H Timmins  
Mgr: C L Wheeler, Jr  
MAGNESIUM PL, Mead

**PACIFIC NORTHWEST MNG CO**  
Bremerton  
Pres: Martin Morrison  
VP: Robert A Rukke  
Gen Mgr: Norman D Lindsay  
Geol: J W Melrose  
LUCILLE & RED TOP MINES,  
2 mi N of Leadpoint, under-  
ground, Zn, Pb, Ag, Cd  
Under devel  
Prod: 20-30 tons  
75-TON FLOT MILL  
(Leased from Consol Speculator  
Corp, which see)

**PACNOR MINES, INC**  
310-313 Radio Central Bldg,  
Spokane 4  
Pres: Graham Lammere  
VP: Clive Tedrow  
Sec: Karl W Jasper  
RUSSIAN CREEK MINE, 15 mi N  
of Metaline Falls  
Idle

**PEND OREILLE MINES & METALS CO**  
923 Old Natl Bank Bldg,  
Spokane 1  
Ch of Bd: S A Easton  
Pres: L P Larsen  
VP & Treas: Jens Jensen  
Sec: A Wimberly  
Gen Mgr: W L Ziegler  
Purch Agt: R G Walker  
Gen Supt: L M Kinney  
Geol: R H Stebbins  
PEND OREILLE MINE, 2 mi N of  
Metaline Falls, underground, Zn, Pb  
Supt: L G Billings  
Foreman: Craig Cody  
Mine Engr: A E Betchart  
2400-TON FLOT MILL  
Assayer: R W Townsend

**PIONEER MINING CO**  
Colville  
LONGSHOT MINE, Old Dominion  
dist, Stevens Co, Ag, Zn, Pb

**RUDEBECK, HARRY**  
Index  
FLORENCE RAE MINE,  
Snohomish Co, Cu, Ag  
Under devel

**JAGINAW GOLD & COPPER MINES, INC**  
300 E. 1st St., Bellingham  
Pres & Gen Mgr: R L Averill  
Sec: John C Averill  
MINE, 1 mi E of Bellingham,  
underground, Cu, Au, Ag  
Under devel

**SCANDIA MINING GROUP**  
312 E 1st Ave, Spokane  
Gen Mgr: Effie Nasburg & Hallenius  
**SCANDIA GROUP, Stevens Co**  
Under devel

**SCOTT & SMITH**  
Carlton  
**BALES ANTIMONY PROP.**  
Okanogan Co, Sb  
Under devel

**SEATZEN & MOOREHEAD**  
Conville  
**GOLD REEF MINE, Kettle Falls,**  
underground, Au, Ag  
Idle

**SILVER COIN MINING CO**  
Rt 1, Lake Stevens  
Oper: Emmett Loth & Assoc  
MINE, Snohomish Co, Au, Ag, Pb,  
Cu, Bi  
Idle

**SILVER KING MINE**  
Narama  
Owner: Alva Sharp  
MINE, Okanogan Co, Au, Cu  
Under devel

**SILVER LEAF MINES CORP**  
401 Empire State Bldg, Spokane  
Pres: H G Loop  
Sec-Treas: E I Fisher  
**SILVER LEAF MINE**

**SILVER STAR MINING CO**  
Tonasket  
Pres & Gen Mgr: Edward Rowan  
VP: B H Branch  
**SILVER STAR MINE, near Tonasket,**  
underground, under devel  
200-TON MILL, under devel

**SILVER TRAIL MINING CO**  
409 American Legion Bldg,  
Spokane  
Sec-Treas: Mary P Brown  
**SILVER TRAIL MINE, Stevens Co,**  
Ag, Pb, Zn, under devel  
**DEAD MEDICINE MINE, Colville**  
dist, Zn

**SLATE CREEK MINING CO**  
145 Horton St, Seattle  
Pres & Gen Mgr: Harry Kramer  
VP: M S Alexander  
Sec-Treas: W C Cusick  
MINE, 30 mi W of Winthrop, under-  
ground, Au  
Supt: Harry Tuttle  
100-TON FLOT MILL  
Supt: W Stephen

**SPOKANE MOLYBDENUM MINES**  
745 Peyton Bldg, Spokane  
Pres: Luke G Bayley  
MINES, Lincoln Co, Mo, Au, Ag  
Under devel

**SPOKANE PORTLAND CEMENT**  
725 Old Natl Bank Bldg, Spokane  
Pres: W B Neill  
VP: G M Bell  
Sec: D D Hartman  
**NAPOLSON MINE, 130 mi N of**  
Spokane, underground, Fe  
Supt: Robert Crook

**SPRINGDALE SILICA SAND, INC**  
401 Symons Bldg, Spokane 4  
Pres: Frank Eichelberger  
VP & Gen Mgr: J W Melrose  
Sec: A A Stutzer  
**QUARRY-LYONS HILL MINE,**  
Springdale, 7 mi SW of Springdale,  
surface, silica sand  
Prod: 200 tons  
250-TON MILL  
Mill Supt: J H Ainsworth

**SULLIVAN MINING CO**  
Metaline Falls  
**METALINE CONTACT MINE,**  
1 mi S of Metaline Falls,  
underground, Zn, Pb  
Under devel  
Mine Supt: Cline Tedrow  
(See Idaho)

**SULTAN BASIN MNG CO**  
Sultan  
Pres & Gen Mgr: G G Startup  
Sec-Treas: George Heald  
MINE, Cu, Ag, Au  
Supt: Robert Curtiss  
Under devel

**SUNNY PEAK MNG CO**  
300 Columbia Bldg, Spokane  
Pres: Charles J Wellner  
VP: H E Mazier  
Sec: F W Kiesling  
Gen Supt: C L Butler  
**MINERAL HILL, GUBSER & MOHAWK MINES, Conconville,**  
Okanogan Co, underground, Ag, Pb,  
Cu, Au, Zn  
Under devel  
Mine Supt: C L Butler

**TALISMAN MNG & LEASING CO**  
730 Peyton Bldg, Spokane  
Pres: H T Born  
VP: Walter Hasen  
Sec: Sam Perry  
Treas: Clifford Taylor  
**TALISMAN MINE, Laurier,**  
underground & surface, Ag, Cu,  
Pb, Zn, Cd  
100-TON FLOT MILL

**TOGO-TURK MINES**  
Fruitland  
Owners: Lower & Greisbauer  
Met: J F Williams  
**TOGO & LUCKY BOY MINES, 6 mi**  
E of Fruitland, undergrd, Cu, Ag  
50-TON FLOT MILL

**TUNGSTEN MNG & MLG CO**  
711 Hutton Bldg, Spokane 4  
Pres & Gen Mgr: P H Casey  
VP: Joe Dillon  
Sec: Wellman Clark  
Geol: Frank Mitchell  
**GERMANIA MINE, Wellpinit,**  
underground & surface, W  
Under devel  
Prod: 300 tons  
300-GRAY MILL  
Mill Supt: Henry Becker

**UNITED COPPER MINES CO**  
10 S 3rd St, Yakima  
Pres: A M Conway  
MINE near Chewelah, Ag, Cu  
Under devel  
Mgr: Chas Delk

**U S GYPSUM CO**  
Evans  
**OPEN PIT MINE, limestone**  
(See Calif, Colo, Mont, Nev, Tex,  
Utah, Lake Superior, Central,  
South & East)

**UTILITY MINING CO**  
Snohomish Co  
Pres: M Bsharah  
**MACHINAW GROUP, Snohomish Co,**  
Au, Cu, Ni  
Idle  
**FLOT MILL**

**WHITHAM, JOHN W**  
703 Seaboard Bldg, Seattle  
**CONY BASIN MINES, King Co,**  
Au, Ag, Cu, Pb, Zn  
Idle

**YOUNG AMERICAN MINES, INC**  
416 Virginia St, Seattle  
Pres: A J Sandtner  
**YOUNG AMERICA MINE, 25 mi**  
NW of Coleville  
Under devel  
30-TON FLOT MILL  
(Leased to Bonanza Lead Co)

**ZENDA GOLD MNG CO**  
635 Securities Bldg, Seattle  
Pres: Robert T Whiting  
VP: B M Snyder  
Exec Mgr: J U M Troy  
Consul Engr: N C Stines  
(See Alaska & Nev)

## WYOMING

**AMERICAN COLLOID CO**  
Upton  
Gen Supt: Edwin Busfield  
Elec Engr: A G Clem  
Purch Agt: Roy H Harris  
MINE, near Upton, surface,  
bentonite  
Mine Supt: Orville Horn  
100-TON MILL  
Asst Mill Supt: Donald Horn  
(See S Dak, Central & South)

**BEAR LODGE MNG CO**  
Stavin Bldg, Hibbing, Minn  
Pres: H H Harrison  
MINES, 8 mi N of Sundance, rare  
earths, Fe, Mn  
Under devel

**BENTON CLAY CO**  
Casper  
Pres: W F Clark  
VP: Fred Carr  
Sec-Treas: Henry Burgess  
Field Mgr: I Kreiner  
MINES, near Casper & Kaycee,  
surface, bentonite  
MILL, Casper

**BLACK HILLS BENTONITE CO**  
Moorecroft  
Pres: H T Thorson  
Gen Mgr: A C Harding  
MINE, Moorecroft & Upton, surface  
Supt: Ralph McCoy  
180-TON MILL, drying & grinding  
Supt: Hoyd Ash

**COLORADO FUEL & IRON CORP**

Sunrise  
Gen Mgr, Mines: G H Rupp  
Geol: D A Carter  
Purch Agt: L C Rose  
**SUNRISE MINE, Platte Co,**  
underground, Fe  
Prod: 2,500 tons  
Mine Supt: M L Sisson  
Mine Foreman: A E Testolin  
Mine Engr: H B Lynch  
(See Colo, South Dakota)

**COPPER KING MNG CO**  
Cheyenne  
Pres & Gen Mgr: Harry Ferguson  
**COPPER KING MINE, 22 mi W of**  
Cheyenne, Au, Ag, Cu  
Under devel

**FOOD MACHINERY & CHEM CORP, WEST-VACO CHEM DIV**  
Box 872, Green River  
Gen Mgr: C A Romano  
Asst Gen Mgr: G R Bowland  
Gen Supt: N E McDougal  
Elec Engr: L Ruffini  
Plant Engr: H F Young  
Safety Engr: J Kovach  
Purch Agt: L Swasey  
MINE, 20 mi W of Green River,  
underground, trona  
Under devel  
Mine Supt: G B Gaylord  
Asst Mine Supt: R F Love  
Mine Foreman: C E Johnston  
Mine Engr: L K Marshall  
2,500-TON PL, solution &  
recrystallization  
Pl Supt: J R Jacobucci  
Asst Mill Supt: A P McCue  
Chemist: Dr W C Bauer  
(See Calif & Central)

**GOOD FORTUNE MNG CO**  
Douglas  
Pres & Gen Mgr: Paul Schroeder  
**GOOD FORTUNE MINE, 5 mi N of**  
Guernsey, surface & underground,  
Fe  
Under devel

**GREAT WESTERN SUGAR CO**  
Box 5308, Terminal Annex  
Denver 17, Colo  
Pres: F A Kemp  
MINE, Horse Creek, underground,  
limestone, chem, ballast, rip-rap  
Prod: 125 tons per hour

**INDEPENDENCE GOLD MNG CO**  
Centennial  
MINE, 7 mi W of Centennial, Au  
Under devel

**INTERNATL MINERALS & CHEM CORP, EASTERN CLAY PRODUCTS DIV**  
Belle Fourche, So Dakota  
MINE, Crook Co, surface, bentonite  
Mgr & Purch Agt: K L Arthur  
Supt: J A Brown  
MILL, Moorecroft  
(See Ariz, Colo, Mont, New Mex,  
S Dak, Central, South & East)

**INTERSTATE CHEM CO**  
2303 Northern Life Tower,  
Seattle, Wash  
MINE & MILL, Cody, gypsum

**MAGNET COVE BARIUM CORP**  
Box 832, Greybull  
Mgr: Lee Grenier  
MINE, surface, bentonite

**MONOLITH PORTLAND MIDWEST OXIDE DIV**  
Laramie  
Pres: Coy Burnett  
Supt: F J Anderson  
Mgr: H D McBride  
Res Engr: W C Graham  
80-TON PILOT PLANT, prod of  
alumina from anorthosite  
Idle

**NATL LEAD CO, BAROID SALES DIV**

Belle Fourche, So Dakota  
**CLAY SPUR, OSAGE & COLONY PL,**  
Colony, surface, bentonite  
**DRY GRINDING PL**  
Supt: D K Rowand  
(See Calif, So Dak, Nev, Tex,  
Central & East)

**PHOSPHATE FERTILIZER, INC**  
Kemmerer  
Pres: Mayben Fox  
VP: Joe Froelicher  
Sec-Treas: Arthur Piz  
Gen Mgr: Matt Bertagnoli  
**PHOSPHATE MINES, INC, 9 mi**  
N of Susie, underground, phosphate  
Idle  
200-TON MILL, Susie  
Foreman: Rex Borino

**SAN FRANCISCO CHEM CO**  
Box 857, Montpelier, Idaho  
Pres & Gen Mgr: D L King  
VP: W S Taylor  
Sec-Treas: Rex L Jones  
**LEEFE MINE, 2 mi NW of Sage,**  
surface, phosphate  
Prod: 1,000 tons  
Purch Agt: S D Dodds  
Foreman: Art Fredrickson  
**PHOSPHATE ROCK & CRUSHING PL**  
Prod: 80,000 tons per month  
Foreman: C S Stephens

**SCHUNDLER, F E CO, INC**  
Rock River  
Pres: F E Schundler  
VP: J C Kingsbury  
Sec: L H Sprague  
MINE, 17 1/2 mi SW of Rock River,  
surface, bentonite  
Prod: 200 tons  
Mine Supt: Ralph Madison  
Asst Mine Supt: Harland Pierce  
240-TON MILL  
Mill Supt: L D Robinson  
Asst Mill Supt: Bill Wilkinson

**SOIL SULPHADIST CO**  
Box 605, Thermopolis  
Pres: Geo Sinton  
Gen Mgr: Maynard Sinton  
MINE, Thermopolis, surface,  
400-yd dragline, S, gypsum

**STANCO SULPHUR PRODUCTS**  
Afton  
Pres: J B Stanley  
MINE, near Auburn, surface, S  
Under devel

**THORSON, HARRY T**  
Osage  
**BENTONITE MINE**  
Prod: 100,000 tons per year  
**WHITE HORSE MNG CO**  
Atlantic City  
Mgr: E R Lund  
**DIANA MINE, underground, Au**  
Idle

**WYODAK CHEM DIV, FED FOUNDRY SUPPLY CO**  
4600 E 71st St, Cleveland, Ohio  
Pres: Ralph Ditty  
Gen Mgr: Louis H Heyl  
MINES: Upton & Colony  
Purch Agt: J E Hollmeyer  
Supt, Upton: Carl Barritt  
Plant Mgr, Upton: O M Ellerman

**WYOMING-GULF SULPHUR CORP**  
Box 936, Cody  
Pres & Gen Mgr: W H Marquette  
VP: H R Aldredge, Jr  
Sec: D U Emmert  
Treas: H R Aldredge  
Purch Agt: Kenneth Miller  
Cons Engr: Harry Pollard  
**CEDAR MT SULPHUR MINE, 3 mi**  
W of Cody, surface, S conc  
Prod: 150 tons  
100-TON FLOT MILL  
Mine Supt: John Mollet  
Mill Foreman: Art Barry

## LAKE SUPERIOR

MICH, MINN, WISC

**BAKER, G M, MLG CO**  
Benton, Wisc  
**TAILINGS, various mines, Pb, Zn**  
**HOSKINS MILL, Shullsburg, Wisc,**  
350-ton flot

**BENTON MILLING CO**  
Benton, Wisc  
Pres: J M Cherry

Sec-Treas & Gen Mgr: F J Cherry  
CHAMPION MINE, 1 mi S of New  
Diggings, idie  
CHAMPION MILL, 250-ton flot,  
Zn, idie  
Supt: Lee Powers

**BIG DICK MINING CO**  
Platteville, Wisc  
Oper: John Bucher  
MINE, Zn, Pb

**BIRKETT, ARTHUR**  
Hazel Green, Wisc  
LITTLE GENTE MINE, Pb, Zn

**BUTLER BROS**  
Hibbing, Minn  
Gen Mgr of Mines: R W Whitney  
MINES, Cuyuna Range, Minn, Fe, Mn  
ALGONIA RESERVE, Cuyuna, idie  
HUNTER, WHITMARSH RESERVE,  
Wolford Twp, idie  
KONA, FED RESERVE, Cuyuna, idie  
MERRITT GROUP, MANGANESE-  
TROMMALD, idie  
MINES, Mesabi Range, Minn, Fe  
ALEXANDRIA RESERVE, Balkan  
Twp, idie  
AROMAC, THEODORE RESERVE,  
Nashauk Twp, idie  
BURRALL RESERVE, Hibbing, idie  
CAROL, LARUE, MACE #2 RESERVE,  
Nashauk, Nashauk Twp, idie  
GALBRAITH, GALBRAITH ANNEX  
MINE, Nashauk Twp  
HARRISON, HALOBE, HONDELY,  
NORTH HARRISON, NORTH  
HARRISON ANNEX, QUINN GROUP  
MINE, Nashauk, Nashauk Twp, Cooley  
PATRICK ANN, PATRICK ANNEX,  
KEVIN, LANGDON, DAVID, SNYDER  
GROUP MINE, Cooley, Greenway Twp  
WYMAN MINE, Nashauk Twp  
MIDWEST GROUP MINE, Nashauk,  
Nashauk Twp  
MACILLICAN MINE, Nashauk  
(See Central)

**CONSUMERS ORE CO**  
Hibbing, Minn  
Gen Mgr of Mines: R W Whitney  
MINES, Mesabi Range, Minn, Fe  
SARGENT RESERVE, Calumet, idie  
(See Central)

**COONS, E W, CO INC**  
Grant & First, Hibbing, Minn  
Pres: W C Cohee  
Gen Supt: R A MacDonnell  
JULIA, GENOA SPARTA &  
GENOA FEE MINES, Virginia,  
Minn, Fe

**COPPER RANGE CO**  
Federal St, Houghton, Mich  
MINING DIV, Painesdale, Mich  
Gen Mgr: D E Moulds  
CHAMPION MINE, 10 mi S of  
Houghton, underground, Cu  
Prod: 750 tons  
Purch Agt: B D Noetzel  
Foreman: Ernest Hitchens  
Mast Mech: W J Andrews  
Ch Elec: Martin Meyers  
Safety Engr: Philip Vertner  
Mine Engr: Peter Steinen  
FLOT MILL, Freda, Mich  
Supt: I T Bowman  
Foreman: Matt Salminen  
Assay: Ross Gamble  
SMELTER, Houghton  
Prod: 50,000,000 lbs per year  
(See White Pine Copper Co)  
(See East)

**CUBA MINING CO**  
Platteville, Wisc  
Treas: A W Heins  
Bus Mgr: E G Deutman  
Purch Agt: F L Johns  
ANDREWS MINE, 4 mi SW of  
Shullsburg, Wisc, Zn, Pb  
Supt: Francis Cherry  
LYNE MILL, grav  
Prod: 12,000 tons annually

**DATES MINING CO**  
37th & 7th Ave West,  
Hibbing, Minn  
PENNINGTON MINE, Ironton,  
Minn, 1-1/2 mi NW of Ironton,  
surface, iron ore  
Mine Supt: Dalton Chambers  
2,000-TON HV MEDIA MILL  
Mill Supt: R P Ramsden

**DODGEVILLE MINING CO**  
824 Gay Bldg, Madison, Wisc  
Part: J J MacDonald  
Gen Mgr & Part: C W Singer  
DODGEVILLE #3 MINE, Dodgeville,  
Wisc, Pb, Zn  
Prod: 250 tons  
Gen Supt: E J Friedrichs  
Foreman: J W Wagner  
150-TON GRAV FLOT MILL  
Supt: John Becakircher  
Foreman: Walter Cook  
Flot Mill Foreman: Alvin Johnson

**DOUGLAS MINING CO**  
Hibbing, Minn  
Gen Mgr Mines: R W Whitney  
MINES, Mesabi Range, Minn, Fe  
DOUGLAS, DUNCAN GROUP MINE,  
Balkan Twp  
NEVILLE RESERVE, Stunts Twp, idie  
SHENANGO RESERVE, Chisholm, idie  
(See Central)

**EAGLE PITCHER CO**  
MNG & SMELTING DIV  
Hazel Green, Wisc  
BIRKETT MINE, Zn  
(See Ariz, Nev & Central)

**GATES, JOHN**  
Platteville, Wisc  
GATES MINE, Zn, Pb

**GIRMAN MINING CO**  
Mineral Point, Wisc  
Oper: John Girman  
MINE, Pb, Zn

**GLOBE IRON CO**  
Jackson, Ohio  
Ch of Bd: E A Jones  
Pres: J H Jones  
VP: J W Morgan  
Sec: W Pfancutt  
Gen Mgr: W R Doell  
GLOBE-CORNELL MINE, 2 mi  
N of Iron Mt, Mich, surf, Fe  
Prod: 200 tons

**GRAND RAPIDS**  
**PLASTER CO**  
1204 Peoples Natl Bank Bldg,  
Grand Rapids 2, Mich  
MINE & MILL, Grand Rapids,  
gypsum

**HALEY-YOUNG MNG CO**  
2223 First Ave, Hibbing, Minn  
Pres: E A Young  
Sec: D D Haley  
ELBERN MINE, 2 mi SE of Fraser,  
Minn, surface, Fe  
Supt: Leo Caehen  
Foreman: Phillip Solomonson

**HANNA COAL & ORE CORP**  
Gen Mgr of Minn Mines:  
R W Whitney, Hibbing, Minn  
Mgr of Mich Mines:  
S E Quayle, Iron River, Mich  
MINES, Fillmore Co, Minn, Fe  
G BLY, H BLY, BREHMER,  
FINSTERMACHER, FREEMAN,  
HADLAND, HAFNER, R JOHNSON,  
LASSALL, LEE J McNEE, MEYER,  
NASH, K OLSON, R OLSON, RATHBURN,  
RICK, SIMON, C TART, W TART,  
Forrestville Twp, Bloomfield Twp,  
Heaver Twp  
MINES, Cuyuna Range, Minn, Fe & Mn  
ALSTEAD, ARKO, NORTH HILLCREST  
GROUP MINE, Ironton  
ANNE, SISTERS, PONTIAC GROUP  
RESERVE, Trommald, idie  
CROFT, MEACHAM GROUP RESERVE,  
Crosby, idie  
FEIGH MINE, Ironton  
HUNTINGTON MINE, Ironton  
LAND & COL RESERVE, Wolford  
Twp, idie  
NORTHLAND RESERVE, Rabbit  
Lake Twp, idie  
LOUISE MINE, Irondale Twp  
MALLIN MINE, Irondale Twp  
MAROCO MINE, Trommald  
RICI RIVER RESERVE, MORRISON,  
Spencer Twp, Aitkin Co, idie  
SECTION C MINE, Irondale Twp  
SNOWSHOE MINE, Irondale Twp  
SOUTH HILLCREST MINE, Ironton  
MINES, Mesabi Range, Minn, Fe  
ALLEN ROSSUM RESERVE,  
Greenway Twp, idie  
ARGONNE, LEACH, PERRY  
GROUP MINES, Nashauk Twp  
CARLZ GROUP MINE, Stunts Twp,  
Keewatin  
HARTMAN, MARK GROUP RESERVE,  
Bass Brook Twp  
MAJORCA RESERVE, Greenway Twp,  
idie  
SCOTT RESERVE, Greenway Twp,  
idie  
SLIVER, ALPENA GROUP RES,  
Virginia, unorganized Twp 58 1/2,  
idie  
SCOTT  
MINES, Michigan, Fe  
GROVELAND RESERVE, idie  
WAUSECA MINE  
(See Central)

**HANNA IRON ORE CO**  
Gen Mgr of Minn Mines:  
R W Whitney, Hibbing, Minn  
Mgr of Mich Mines:  
S E Quayle, Iron River, Mich  
MINES, Cuyuna Range, Minn, Fe, Mn  
BARROWS RESERVE, Crow Wing Twp,  
idie  
CUYUNA, DUNN, POLK, TABERT  
GROUP RES, Oak Lawn Twp, idie  
N W I RESERVES, Crow Wing Twp,  
Long Lake Twp, Nokay Lake Twp,  
Oak Lawn Twp, idie  
GLORIA, ZENO RES, MANGANESE,  
idie  
RABBIT LAKE RES, Cuyuna, idie  
OMAHA RES, Oak Lawn Twp, idie  
ROWE RES, Irondale Twp, idie  
WALKER RES, Nokay Lake Twp, idie  
YAWKEY RES, Crosby, Cuyuna, idie  
PORTSMOUTH GROUP MINE, Crosby  
MINES, Mesabi Range, Minn, Fe  
DRAPER ANNEX RES, Greenway Twp,  
idie  
BECKFELT, FINNEGAN, HIGGINS,

**LUNDRIAN, NATHAN**  
PARKESMAN  
GROUP RES, Bass Brook Twp, idie  
PARCEL #3 RESERVE, Iron River, idie  
BILLINGS RESERVE, Iron River, idie  
SECTION 18 MINE, Iron River, idie  
MINES, Michigan, Fe  
BENGAL-TULLY MINE, Iron River, idie  
HIAWATHA MINE, Iron River, idie  
HOMER MINE, Iron River, idie  
WAKEFIELD  
(See Central)

**HANNA ORE MINING CO**  
Hibbing, Minn  
Gen Mgr of Mines: R W Whitney  
MINES, Mesabi Range, Minn, Fe  
BOVEY-DELAITRE, Iron River, idie  
GROUP RES, Grand Rapids Twp,  
idie  
BRAY, GORDON, GORDON ANNEX  
MESABI CHIEF, Minn & STEN  
GROUP MINE, Nashauk Twp,  
Keewatin  
BRUNT RESERVE, Minn, idie  
BUCKEYE, JENNISON GROUP  
MINE, Arbo Twp  
ENTERPRISE MINE, Virginia  
FRANTZ, SHIRAS GROUP RES,  
Buhl, idie  
NORPAC, IMPRO B, SARGENT  
GROUP RES, Hibbing  
NORTH UNO RES, Stunts Twp, idie  
WABIGON, THORNE GROUP RES,  
Buhl, Great Scott Twp  
(See Central)

**HEDMAN MINING CO**  
Hibbing, Minn  
Pres & Gen Mgr: Carl Hedman  
VP: Hugh H Harrison  
Sec-Treas: D J Keefer  
CROXTON & DREW-SYME MINES  
Balkan Twp, Mesabi Range,  
surface, Fe

**HERRON & GLENDENNING**  
Shullsburg, Wisc  
MULLEN MINE, Zn, Pb

**HOMESTEAD MINING CO**  
Platteville, Wisc  
ACME & RASQUE MINES near  
Platteville, Wisc, Zn, Pb  
350-TON GRAV FLOT MILL

**INLAND STEEL CO,**  
IRON ORE OPER  
Mgr, Mines & Quarries:  
A J Cayia, Manistique, Mich  
Mgr, Raw Materials Dept:  
C B Jacobs, Chicago  
Gen Supt: R D Satterley,  
Islepeyming, Mich  
Asst Gen Supt: H M Graff,  
Islepeyming, Mich  
Supt, Menominee Range Oper:  
P D Pearson, Iron River, Mich  
SHERWOOD MINE, Iron River, Mich  
Supt: R O Marsten  
BRISTOL MINE, Crystal Falls, Mich  
Supt: W P Reed  
CAYIA MINE, Crystal Falls, Mich  
Supt: B T Burwell  
GREENWOOD MINE, Islepeyming, Mich  
Supt: E W Whitman  
MORRIS MINE, Islepeyming, Mich  
Supt: R W Edwards  
ARMOUR #1 & #2 MINES, Ironton,  
Minn  
Supt: A T Anderson  
FLUORSPAR OPERATIONS, Manistique,  
Mich  
Mgr: A J Cayia  
(See Central)

**JACKSON IRON & STEEL CO**  
BRADLEY MINE, Iron Mt, Minn, Fe  
Prod: 32,500 tons per year  
(Operated by Edward C Bradley & Sons)  
(See Central)

**JESSIE H MINING CO**  
Grand Rapids, Minn  
Pres: E W Hallett  
VP: R N McGiffert  
JESSIE MINE, 3 mi NE of Grand  
Rapids, surface, Fe  
Prod: 2,200 long tons  
Mine Supt: F D McElwee  
Mine Foreman: L R Seaver  
Mine Engr: J J Walker

**JONES & LAUGHLIN**  
STEEL CORP  
MINNESOTA ORE DIVISION  
Virginia, Minn  
Mgr: G E LeVeque  
Gen Supt: H F Kullberg  
Ch Acct: F S Tonnesen  
Gen Mng Engr: C H Slemons  
Res Engr: E H Olson  
Res Geol: T E Stephenson  
MINES, Mesabi Range, Fe  
HILL ANNEX MINE & MILL  
Calumet, Minn  
Mine Supt: R O Brandon  
Mill Supt: G Elertson



**LONGVIEW MINE & MILL,**  
Hibbing, Minn.  
Mine Supt: J. F. Linden  
COLLEGE A. MISSABE MT  
MINE & MILL, Virginia, Minn.  
Mine Supt: P. W. Kruse  
Asst Supt: H. W. Gillespie  
SCHLEY BETTIT MINES & MILL,  
Gilbert, Minn.  
Mine Supt: P. W. Kruse  
Asst Supt: H. W. Gillespie  
WENTWORTH MINE & MILL,  
Mesabi, Minn.  
Mine Supt: P. W. Kruse  
Asst Supt: H. W. Gillespie  
LIND-GREENWAY MINES,  
Cobden, Minn., under devel.  
Mine Supt: R. O. Brandon  
MICHIGAN ORE DIVISION,  
Jopesham, Mich., Fe  
Gen Supt: R. W. Braund  
TRACY MINE, Negaunee, Mich.,  
underground, under devel.  
Supt: R. L. Balloni  
Asst Supt: H. J. Christy  
Engr: W. A. Benson  
(See East)

**MAHLAND ORE CO**  
Iron River, Mich.  
Mgr of Mines: S. E. Quayle  
MINES, Michigan, Fe  
CHICAGO RESERVE  
WHITENDE RESERVE  
(See Central)

**MAYER & THIEDE**  
Shullsburg, Wisc.  
ROWE LEAD MINE, Shullsburg, Pb.  
Under devel.

**MEEKER'S GROVE MNG CO**  
305 Broadway St., Platteville, Wisc.  
LIBERTY & LEO V MINES, 5 mi NE  
of Cuba City, Wisc., undergrd., Zn, idle  
400-TON GRAV FLOT MILL, 1 mi  
from Liberty Mine, under const.

**MICKEY MINING CO**  
Benton, Wisc.  
Partner: C. J. Fox  
DOYLE HEIRS LEASE, Zn, Pb

**MIFFLIN MINING CO**  
Platteville, Wisc.  
Pres & Gen Mgr: Richard Metcalf  
COKER MINE, Mifflin, Wisc.  
125-TON FLOT MILL

**MINERAL MINING CO**  
Box 391, Iron River, Mich.  
Pres: W. D. Van Dyke, Jr.  
Gen Mgr: F. E. Brown  
Asst Mgr: W. F. Brown  
BETA-NANAIMO & BUCKHOLTZ  
MINES, Fe  
Under devel.  
Purch Agt: Leona Glemboski

**MINERAL POINT MNG CO**  
Mineral Point, Wisc.  
Mgr: Curtis Simpson  
RICHARDS LEASE, 1/2 mi N of  
Mineral Point, Zn, Pb

**MISSCO MINING CO**  
(Operating subsidiary of  
Haley-Young Mining Co.)  
Keweenaw  
MISSISSIPPI #1 MINE near  
Kewatin, Mesabi Range,  
surface

**MOORE, W. S. CO**  
Brooklyn Rd., Hibbing, Minn.  
Pres: W. S. Moore  
Sec: H. A. Nelson  
Gen Mgr: H. E. Reese  
Gen Supt: John Johnson  
Geol: J. V. Everett  
Mch Engr: J. M. Madsen  
Office Mgr: B. J. Kennedy  
PRINDLE MINE, 1 mi W of Virginia,  
underground, iron ore  
Prod: 2,500 tons  
Mine Supt: S. E. Keturi  
HEAVY MEDIA MILL  
Mch Supt: W. F. McDermott  
JUDSON MINE, 1 mi S of Buhl,  
underground, iron ore  
Prod: 1,500 tons  
JUDSON CRUSHER  
MARION MINE, 1 mi NE of Gilbert,  
surface, under devel.  
PILOT ANNEX MINE, 4 mi NE of Mt  
Iron, surface, iron ore  
HANNA MINE, 4 mi NE of Mt Iron,  
surface, iron ore  
YARKEY MINE, 3 mi NW of  
Virginia, surface, iron ore  
YARKEY CRUSHER  
MARGARET MINE, 1/2 mi W of  
Buhl, surface, iron ore

**MORTON ORE CO**  
Hibbing, Minn.  
Gen Mgr of Mines: R. W. Whitney  
MINE, Mesabi Range, Minn., Fe

**MORTON, SOUTH EDDY GROUP**  
MINE, Stuntz Twp.  
Mine Supt: L. M. Bredvold  
Asst Mine Supt: M. A. Englund  
Mine Foreman: John Gernert  
(See Central)

**MURRAY & RICHARDS**  
500 Minerva St., Darlington, Wisc.  
Mgr: J. H. Richards  
JAMES MINE, Zn, Pb  
Prod: 700 tons per month

**NATIONAL GYPSUM CO**  
QUARRY & PLANT, National  
City, Mich., gypsum  
Pl Mgr: C. H. Hill  
Quarry Supt: R. H. Allen  
(See Texas, Central, South & East)

**NEW DALL MINING CO**  
Cuba City, Wisc.  
Oper: Delbert Dall  
MINE, Zn, Pb

**NORTH RANGE MNG CO**  
Negaunee, Mich.  
Pres & Gen Mgr: R. S. Archibald  
VP: F. P. Book  
Sec: E. S. Holmgren  
Asst Mgr: C. W. Nicolson  
Geol: L. E. Smith  
Ch Elec: G. H. Peterson  
BLUEBERRY MINE, Ishpeming,  
Mich.  
Supt: A. J. Guscott  
Capt: R. L. Prideaux  
Purch Agt: P. A. Alexander  
BOOK MINE, Alpha, Mich.  
Supt: J. C. Kirkpatrick  
Capt: Charles Cooile  
CHAMPION MINE, Champion, Mich.  
Supt: J. A. Nicolson  
Capt: Bryan Farragh  
WARNER MINE, Amasa, Mich.  
Supt: J. C. Kirkpatrick  
Capt: C. A. Clements

**OGLEBAY NORTON & CO**  
NORTHERN OFFICE,  
300 Christie Bldg., Duluth, Minn.  
VP: Frank J. Smith  
Ch Mng Engr: D. S. Young  
Dev Engr: T. V. Conning  
Elec Engr: W. W. Viebahn  
Mech Engr: L. E. Crosby  
Purch Agt: E. A. Lambert  
MONTREAL MINING CO, agent for  
Montreal Mining Co.  
MONTREAL MINE, Montreal,  
Wisc., Fe  
Supt: C. A. Bjork  
Asst Supt: C. F. Guenther  
ST JAMES MINING CO,  
manager for St James Mining  
Co.  
ST JAMES MINE, Aurora, Minn.  
Supt: B. L. Knudsen  
Gen Foreman: T. H. Trihey

**PIONEER MINING CO**  
Box W, Biwabik, Minn.  
Pres: Patrick Butler  
VP: Frank S. Bergstrom  
Ch of Bd: Emmett Butler  
Sec: F. J. McArthur  
MARY ELLEN MINE, 1/2 mi W  
of Biwabik, surf., iron ore conc.  
Prod: 500,000 tons conc per year  
Mine Supt: H. F. Manseau, Jr.  
Mine Foreman: Frank Press, Jr.  
HV MEDIA MILL

**QUINCY MINING CO**  
63 Wall St., New York, New York  
Sec-Treas: A. M. Mansfield  
QUINCY RECLAM PL., Mason, Mich., Cu

**PACIFIC ISLE MINING CO**  
2521 First Ave., Hibbing, Minn.  
Pres: H. H. Harrison  
Gen Mgr: J. D. Boente, Jr.  
Supt: R. H. Chisholm  
Office Mgr: D. J. Keeler  
Gen Counsel: E. T. Binger  
Pl Supt: Jack Durham  
Supt: Arne O. Tuomala  
CYPRUS, DALE, idle  
KERR, LAMBERTON & SMITH  
MINES, Stuntz Twp., Mesabi  
Range, Minn., surface, Fe  
MISSABE MT MINE, Franklin  
NORDINE MINE, Stuntz Twp.  
NORTH SHIRAS MINE, Buhl  
WACOTA MINE, Mt Iron  
YORK MINE, Nashwauc

**PENNSYLVANIA SALT  
MFG CO**  
1000 Widener Bldg.,  
Philadelphia, Pa.  
SALT-PLANT, Wyandotte, Mich.

**PHILBIN MINING CO**  
Hibbing, Minn.  
Gen Mgr of Mines:  
R. W. Whitney, Hibbing  
MINES, Mesabi Range, Minn., Fe.

**WEGGUM, SOUTH LONGYEAR**  
GROUP MINE, Hibbing  
(See Central)

**REPUBLIC STEEL CORP**  
Hibbing, Minn.  
SUSQUEHANNA MINE, Hibbing,  
surface  
Mine Supt: J. H. Hocking  
Asst Mine Supt: M. G. Woodie  
Engr: B. K. Dutton  
Night Pit Foreman: John O. Pearson  
GRAV CUSTOM WASHER, Hibbing  
Mech Engr & Elec Engr: Victor Crego  
Assay: A. J. Mayheu  
Prod: 1,000,000 per year  
PENOSKE MINE, Ironwood, Mich.,  
underground, Fe.  
Mine Supt: A. J. Christenson  
Asst Mine Supt: Joseph Zuraw  
Ch Engr: E. W. R. Butcher, Duluth  
Mine Foreman: Oscar Holst  
Mech & Elec Engr: Victor Crego  
Assay: John Trevarthen  
Prod: 600,000 tons per year  
ST. PAUL MINE, Keweenaw, Minn.,  
surface  
Mine Supt: J. H. Hocking  
Asst Mine Supt: M. G. Woodie  
Mng Engr: B. K. Dutton, Hibbing  
Mng Foreman: E. M. Murphy  
GRAV MILL  
Mech & Elec Engr: Victor Crego  
Assay: A. J. Mayheu  
Prod: 350,000 tons per year  
STEVENSON MINE, Stevenson, Minn.,  
surface, Fe.  
Mine Supt: J. H. Hocking  
Asst Mine Supt: M. G. Woodie  
Mng Engr: B. K. Dutton  
Pit Foreman: L. J. Marinello  
GRAV MILL  
Mech & Elec Engr: Victor Crego  
Assay: A. J. Mayheu  
Prod: 225,000 tons per year  
TOBIN MINE, Crystal Falls, Mich.,  
underground, Fe.  
Mine Supt: E. H. Anderson  
Mine Foreman: Emil Johnson  
Ch Engr: E. W. R. Butcher  
Mech & Elec Engr: Victor Crego  
Assay: J. H. Meyer  
Prod: 432,000 tons per year  
(See Central & East)

**PICKANDS, MATHER & CO**  
700 Sellwood Bldg., Duluth 2, Minn.  
Gen Mgr: A. D. Chisholm  
Asst Gen Mgr: J. C. Metcalf  
Ch Mng Engr: O. L. Yauch  
Pit Foreman: Kenneth Duncan  
Asst Mgr, Ore Mines: E. L. Joppa  
Mgr, Taconite Oper: C. F. Troelbridge  
Asst Mgr, Taconite Oper: D. M. Chisholm  
Mech Supt, Taconite Oper: B. W. Bernstrom  
Ch Mech Engr: A. C. Butterworth  
Purchasing Agent: D. A. Bruneau  
Safety Supervisor: E. A. Anundsen  
HIBBING DIST., Mesabi Range, Hibbing,  
Minn.  
Gen Supt: E. J. Fearing  
Asst Gen Supt: M. L. Bradt  
Dist Mng Engr: R. W. Sullivan  
Ch Clerk: Lee McNulty  
Dist Safety Supervisor: C. E. Hager  
CRUZE MINING CO, ALBANY MINE &  
WASHING PL., Hibbing, Minn., surface  
Supt: T. R. Trengemo  
BENNETT MINING CO, BENNETT  
MINE & WASHING PL., undergrd & surf.  
Supt: A. E. Schneider  
Asst Supt: E. R. Tyler  
HOYT MINING CO, SCRANTON MINE,  
CRUSHING & WASHING PL., Hibbing,  
Minn., surface  
Supt: W. D. Webb  
MAHONING ORE & STEEL CO,  
MAHONING MINE, Hibbing, Minn.  
Supt: W. G. Brown  
UTICA MINING CO, CARMICHAEL-  
LAKE MINE & CRUSHING PL., Hibbing,  
Minn., surface  
Asst Supt: L. T. Lang  
BALKAN MINING CO, DANUBE MINE &  
WASHING PL., Bovey, Minn., surface  
Supt: D. E. Coughlin  
WESTERN MINING CO, WEST HILL  
MINE, Grand Rapids, Minn.  
Supt: L. M. Becker  
EAST MESABI DIST., Biwabik, Minn.  
Gen Supt: T. C. Thielman  
CORSCA IRON CO, CORSCA MINE &  
CRUSHING & WASHING PL., Eleor,  
Minn., surface  
Supt: H. F. Sears  
BIWABIK MINING CO, BIWABIK  
MINE & BENEFICIATING PL.,  
Biwabik, Minn., surface  
Supt: J. M. Shields  
LAKE MINING CO, EMBARRASS  
MINE & CRUSHING PL., Biwabik,  
Minn., surface  
Supt: R. F. Kohn  
ERIE MINING CO, TACONITE  
OPER, Aurora, Minn.  
Supt: G. C. Watts  
Asst Supt: R. W. Bell

**ELY DIST., Vermilion Range,**  
Ely, Minn.  
Supt: B. S. Richards  
VERMILION MINING CO, ZENITH  
MINE, Ely, Minn., underground  
Supt: B. S. Richards  
CUYUNA DIST., Cuyuna Range,  
Crookston, Minn.  
Gen Supt: J. P. Schimmel  
Dist Mng Engr: George Chamberlin  
Chief Clerk: D. S. McKay  
CUYUNA ORE CO, MAHONING  
MINE & CRUSHING PL., Ely, Minn.,  
surface  
Supt: R. T. Bell  
SAGAMORE ORE MNG CO,  
SAGAMORE MINE, CRUSHING &  
DRYING PL., Riverton, Minn.,  
surface  
Supt: R. T. Bell  
YOUNGSTOWN MINES CORP.,  
RABBIT LAKE MINE & CRUSHING PL.,  
Crookston, Minn., surface  
Supt: R. T. Bell  
GOGHEIC DIST., Ironwood, Mich.  
Gen Supt: W. A. Knoll  
Asst Gen Supt: C. D. Bailey  
Dist Mng Engr: Bruce E. Kennedy  
Ch Clerk: R. D. Kennedy  
Dist Safety Super: George Gerry  
ODANAH IRON CO, CAIRY MINE,  
Hurley, Wisc., underground  
Supt: A. L. Johnson  
YOUNGSTOWN MINES CORP.,  
NEWPORT MINE, Ironwood, Mich.,  
underground  
Supt: H. L. Schieber  
YOUNGSTOWN MINES CORP.,  
ALBANY-PALMS-KEEWENAW MINE,  
Bessemer, Mich., underground  
Supt: R. L. Jose  
PETERITAN MINING CO, PETERSON  
MINE, Bessemer, Mich., undergrd.  
Supt: H. L. Schieber  
Asst Supt: P. F. Toranzo  
PLYMOUTH MNG CO, LOGAN MINE,  
Wakefield, Mich., surface  
Supt: E. C. Spornberg  
SUNDAY LAKE IRON CO, SUNDAY  
LAKE MINE, Wakefield, Mich., undergrd.  
Supt: R. D. Hodge  
PALMER MNG CO, VOLUNTEER MINE,  
Palmer, Mich., surface  
Supt: E. C. Spornberg  
MENOMINEE DIST., Caspian, Mich.  
Gen Supt: H. J. Richards  
Dist Mng Engr: A. E. Seppanen  
Ch Clerk: S. K. Brew  
Dist Safety Supervisor: L. A. Schutz  
WESTERN MNG CO, DAVIDSON  
MINE, Iron River, Mich., undergrd.  
JAMES MNG CO, JAMES MINE,  
Iron River, Mich., underground  
VERONA MNG CO, BUCK &  
LAWRENCE MINES, Caspian,  
Mich., underground  
FORTUNE LAKE MINE, PICKANDS  
MATHER & CO, Managing Agent,  
Crystal Falls, Mich.

**RESERVE MINING CO**  
(Owned by Republic & Armco  
Steel Corps)  
Consultant: Oglebay, Norton & Co.  
RESERVE MINE, Babitt, Minn.,  
taconite  
Mgr Oper: R. J. Linney  
Asst Mgr Oper: John Dunlop  
Engr: F. W. Erickson  
Mine Supt: A. F. Toranzo  
CRUSHING & PILOT PL.  
Prod: 300,000 tons pellets per year  
Supt: E. Furzeau  
PELLETIZING PL., Beaver Bay,  
Minn., under const.  
Mgr. Const: E. C. Lampman  
Supt: K. M. Hailey  
(See Central)

**RHODE & FRYBERGER**  
Box 779, Hibbing, Minn.  
Partners: A. S. Rhode, L. M. Fryberger  
(See Dates Mining Co.)  
TROY MINE, Eveleth, Mesabi Range,  
surface  
SEVILLE MINE, Kinney, Mesabi  
Range, surface  
SOUTH HILL CREST STOCKPILE,  
Ironton, Cuyuna Range

**RICHMOND IRON CO**  
Iron River, Mich.  
Mgr of Mines: S. E. Quayle  
MINES, Michigan, Fe  
RICHMOND MINE  
(See Central)

**ROONEY & GILL**  
Leadmine, Wisc.  
Oper: Emmett Rooney  
FEDERAL MINE, Pb, Zn

**ST JAMES MINING CO**  
ST JAMES MINE, Aurora, Minn., Fe  
Supt: B. L. Knudsen  
(See Central)

**SCALLON ZINC CO**

Benton, Wisc  
Ngr: E P Scallon  
LITTLE GRANT MINE, Benton,  
Wisc, underground, Pb, Zn  
Under devel  
450-TON MILL

**SKUBIC BROS CO**

705 6th Ave N, Virginia, Minn  
Pres: Tony Skubic  
Sec: Frank Skubic  
VIRGINIA MINE, Eveleth, 3 mi S  
of Virginia, underground, Fe  
Idle  
Mine Supt: L Swanson  
200-TON HV MEDIA MILL, Jiggs  
Mill Supt: Vince Lacer

**SNYDER MINING CO**

101 Alworth Bldg,  
Duluth, Minn  
Gen Mgr: O A Sundness  
Mech Engr: Edward Eidam  
Safety Engr: F J Sullivan  
Purch Agt: C J Hathaway  
WEBB MINE, Hibbing, Minn  
surface, iron ore  
Prod: 3,000 tons  
Mine Supt: J J Maney  
Mine Foreman: A E Des Rosier  
Mine Engr: John Munter  
1,000-TON CRUSHING & WASH PL  
WHITESIDE MINE, Buhl, Minn,  
surface, iron ore  
Prod: 7,500 tons  
Mine Supt: Roy Baker  
Asst Mine Supt: Charles Rudstom  
Mine Engr: Dean Swalm  
CRUSHING PLANT  
(See East)

**SOUTH AGNEW MNG CO**

Hibbing, Minn  
Gen Mgr of Mines: R W Whitney  
MINES, Mesabi Range, Minn, Fe  
SOUTH AGNEW, AGNEW #2 GROUP  
MINE, Stuntz Twp  
(See Central)

**U S GYPSUM CO**

ALABASTER, Mich, surface,  
gypsum  
(See Calif, Colo, Mont, Nev, Texas,  
Utah, Wash, Central, South & East)

**U S STEEL CORP.**

OLIVER IRON MNG DIV  
Wolvin Bldg, Duluth 2, Minn  
Pres: R T Elst  
Vice Pres, Oper: J E Machamer  
Asst Sec, U S Steel Corp:  
A R Morton  
Treas: R L Larson  
Compt: R B Henley  
Asst to Vice Pres:  
W N Matheson, Jr  
Gen Mng Engr: L J Severson  
Asst to Gen Mng Engr:  
N A Moberg  
Geol: R H B Jones  
Super of Ore Mvmt: F J Perry  
Super, Beneficiation:  
A T Koenen  
Ch Engr: C N Bailey  
Dir of Ind Rel: R O Hawkanson  
Purch Agt: G A Engel  
Ch Ore Grader: G H Sharbach  
EASTERN DIST  
Gen Supt: I O N Swanson  
Asst Gen Supt: J M Johnson  
L S Campbell  
Supt of Maintenance: J A Vititium  
Asst Supt of Maintenance:  
C R Peterson  
Chief Chemist: I R Lerohl  
Ch Mng Engr: P V Burgett  
CANTON MINE, Biwabik, Mesabi  
Range, Minn, surface  
Supt: D Hartley  
EVELETH MINES  
Supt: K H McInnis  
Asst Supt: C V Wargstrom  
Capt: O J Makinen, Spruce U G  
MT IRON MINE, Mt Iron, Mesabi  
Range, surface  
Supt: J H Rubow  
Asst Supt: L E McKenzie  
PIONEER MINE, Ely, Vermilion  
Range, underground  
Supt: L E Dick  
Capt: J D Warner  
SOUTHERN MINE, Breitung Twp,  
Vermilion Range, underground  
Supt: E M Holmes  
Capt: G J Nemanich, Jr  
HIBBING-CHISHOLM DIST  
Gen Supt: J H Harding, Jr

Asst Gen Supt: J Chisholm  
Super of Maint: C R Burton  
Chief Engr: W P Wolff  
Chief Chemist: O L Forsberg  
GODFREY MINE, Chisholm,  
Mesabi Range, underground  
Supt: W Been  
Capt: A F Hulme  
HULL-ROST MINES, Hibbing,  
Mesabi Range, surface  
Supt: N G Holland  
Asst Supt: W J McGuire  
AUBURN MINE, Virginia, Mesabi  
Range, surface  
Supt: E V Nelson  
BURNS MINE, Fayal Twp, Mesabi  
Range, surface  
Gen Supt: I O N Swanson  
KNOX MINE, Mesaba Twp, Mesabi  
Range, underground  
MORRIS GROUP, Hibbing, Mesabi  
Range, surface & underground  
FRASER MINE, Fraser, Mesabi  
Range, surface  
MIDWAY GROUP, Kinney, Mesabi  
Range, surface  
DORMER GROUP, Kinney, Mesabi  
Range, surface  
NILES-DOUGLAS MINE, Balkan  
Twp, Mesabi Range, surface  
SHARON MINE, Buhl, Mesabi  
Range, surface  
Gen Supt: I O N Swanson  
SELLERS-WEBB MINE, Hibbing,  
Mesabi Range, surface  
GOGEBIC DIST  
Supt: F W Denton, Jr  
Asst Supt: R D Lindberg  
Ch Mng Engr: J C Howbert  
GENEVA MINE, Ironwood, Mich,  
underground  
Asst Mng Capt: L Gribble  
I J Watson  
HULL CRUSH & SCREENING PL  
Gen Foreman: P A Cheever  
MONROE MINE, Chisholm,  
Mesabi Range, surface  
Supt: W Been  
Gen Pit Foreman: J C Cullis  
PILLSBURY MINES, Balkan Twp,  
Mesabi Range, surf & undergrd  
Supt: H M Pickering  
SHERMAN MINE, Balkan Twp,  
Mesabi Range, surface  
Supt: M J Forsmark  
Asst Supt: E C Silver  
Gen Pit Foreman: W K Reichel  
CANISTEO DIST  
Gen Supt: E A Friedman  
Asst Gen Supt: M Johnson  
Chief Chem: E R Bechtel  
Chief Engr: L E Battles  
Supt of Maint: A C Priak  
ARCTURUS-GROSS MARBLE,  
Mesabi Range, surf, taconite  
Supt: H F Bolton  
TROUT LAKE CONC  
Supt: K F MacAlpine  
WALKER MINE, Coleraine,  
Mesabi Range, surface  
Supt: J H Harrison  
Gen Pit Foreman: H C Ernst  
PLUMMER MINE  
Asst Supt: W B Beebe  
KING MINE, Coleraine, Mesabi  
Range, surface  
Gen Supt: E A Friedman

**VAIL ENGINEERING CO**

Box 59, Platteville, Wisc  
Pres: A V Austerman  
Sec-Treas: Margorie Webb  
CHAMPION MINE, New Diggings, Wisc,  
underground, Zn, Pb  
300-TON GRAV FLOT MILL  
Mill Supt: Charles Bennett  
Assayer: M Webb  
Idle

**VINEGAR HILL ZINC CO**

Platteville, Wisc  
Gen Mgr: W N Smith  
Works Acct: A W Heins  
EAST BLACKSTONE MULCAHY,  
HAWCOCK MINES, Shullsburg,  
Wisc  
HAWCOCK MILL, flst  
Prod: 800 tons per month

**WHITE PINE COPPER CO**

White Pine, Mich  
Pres: M F LaCroix  
VP: Harold B Ewald  
Exec Asst: S H Cohlmeier  
Geol: J Rand  
Research: V Zandon  
Land Mgr: W P Nicholls  
Mine Supt: R F Moe  
Mill Supt: W A Hamilton  
Smelter Supt: R C Wilson  
Ch Engr: C A Haberleth  
(See Copper Range Co)

**WHITECHURCH & FARR**

Shullsburg, Wisc  
LITTLE MULLEN MINE, Zn, Pb  
Prod: 20 tons per day

**WYANDOTTE CHEM CORP**

Wyandotte, Mich  
SALT PLANT, Wyandotte

**YOUNG, E. A. INC**

(Operating subsid Haley-Young  
Mining Co)  
2223 First Ave, Hibbing, Minn  
Pres: E A Young  
VP & Supt: Nels Kempainen  
Sec: D D Haley  
MINNEWAS MINE, 2 mi E of  
Virginia, Mesabi Range, Minn,  
surface & underground, Fe  
Foreman: A N Heikkila  
Assay: Lerch Bros, Inc

**ZONTELLI BROS, INC**

Ironton, Minn  
VIRGINIA MINE, N of Ironton,  
Cuyuna Range, surface, Fe  
MINNESOTA MINES  
GRAHAM #1 MINE, Mesaba Twp,  
Mesabi Range, surface  
MANGAN-JOAN MINE, Irondale,  
Cuyuna Range, surface  
MARTIN LEAN ORE STOCKPILE,  
Irondale, Cuyuna Range  
HILL CREST LEAN ORE STOCK-  
PILE, Ironton, Cuyuna Range  
MERRITT LEAN ORE STOCKPILE,  
Trommald, Cuyuna Range  
MANUEL MINE, Crosby, Cuyuna  
Range, surface  
GORMAN MINE, Clough Twp,  
Cuyuna Range, surface  
MICHIGAN  
IRONWOOD CONC  
PENOKEE LEAN ORE STOCKPILE

**CENTRAL**

ARK, ILL, IND, IOWA, KANS,  
OHIO, MO, NEBR, NO DAK, OKLA

**ADMIRALTY MNG CO.**

Picher, Okla  
MINES, Pb, Zn

**ALCOA MINING CO,**

FLUORSPAR DIV  
1500 Mississippi,  
Valley Trust Bldg,  
St Louis 1, Mo  
VP in Chg: A B Williams  
Works Mgr: W S Skeels  
FAIRVIEW MINE, Rosiclare, Ill,  
Pb, Zn, fluorite  
Prod: 5,000 tons per mo  
Purch Agt: Brice Crow  
Supt: W H Harrison  
Engr: S G Bousman  
Mech Engr: H E Efner  
Geol: A H Sutton  
HMS & FLOT MILL  
Supt & Met: W C Lay  
Assay: V C McDonald  
(See South & Oregon)

**ALLIED CHEM & DYE**

CORP., GEN CHEM DIV  
Owensville, Mo  
MISSOURI CLAY FIELDS  
Supt: R A Parker  
(See Colo, New Mex, South & East)

**AMERICAN ZINC, LEAD &**

SMELTING CO  
St Louis, Mo  
Pres: H I Young  
VP: R A Young  
Sec: W J Matthews  
MINE OPER, ORE BUYING &  
LAND DEPTS, Box 870, Joplin, Mo  
Dist Mgr: John J Inman  
Gen Supt: O L Green  
Geol: Dan R Stewart  
Met: R A Ammon  
Mech & Safety Engr: W F Notaband  
NELLIE B DIV (RIALTO),  
BARBARA J & LAWYERS  
MINES), Picher, Okla,  
underground, Pb & Zn concn  
Prod: 2,500 tons  
Mine Supt: Bert Huddleston  
THREE GRAV-FLOT MILLS, Picher  
Prod: 3,000 tons  
Mill Supt: T M Nix  
QUICK SEVEN DIV, Neck City, Mo  
(operated jointly with Brown & Root),  
surface, Zn  
1,500-TON GRAV-FLOT MILL,  
Neck City, Mo  
Supt: Jack Gilbert  
(See Amer Zinc-III, Central, Amer  
Zinc-Tenn, South, Amer Zinc, Lead &  
Smelting, Wash & Texas)

**AMERICAN CO. CO**

Merchandise Mart, Chi,  
Chicago 5, Ill  
Pres & Gen Mgr: J. H. Bechtel  
VP: W D Weaver  
Asst Sec: Jeanette Bechtel  
Gen Supt: Edwin Bechtel  
Purch Agt: Roy H. Bechtel  
(See So Dak, Wyo & Mont)

**AMERICAN CYANAMID CO**

Box 726, Little Rock, Ark  
MINE, 4 mi S of Little Rock,  
surface, bauxite  
Mine Mgr: R H Hays  
(See South & East)

**AMERICAN SMELTING &**

REFINING CO  
OMAHA SMELTER & REFINERY  
Omaha, Nebr, Pb  
Mgr: Ray C Shaw  
Gen Supt: J C Reiblich  
FEDERAL SMELTER, Federal,  
Ill, Pb  
Mgr: L J Buck  
Supt: James H Voss  
SAND SPRINGS PLANT, Sand  
Springs, Okla, zinc dust  
Supt: S J Lakins  
(See Ariz, Colo, Calif, Idaho,  
Mont, New Mex, Utah, Wash & East)

**AMERICAN ZINC CO**

OF ILLINOIS, SUBSID  
OF AMERICAN ZINC, LEAD &  
SMELTING CO  
Hillsboro, Ill  
SMELTING & PROCESSING PL, Zn  
Supt: H R Wampler  
Met Div Supt: J F Clark  
Gen Foreman: H J Collett  
Mech Engr: M A Bonadure  
Met: Oscar Hassel  
Assay: Orville Rutledge  
Annual prod:  
12,800 tons Amer prod zinc oxide  
2,700 tons Fr prod zinc oxide  
7,150 tons slab zinc  
(See Amer Zinc-III, Texas, Amer Zinc-  
Tenn, South, Amer Zinc, Lead & Smel-  
ting, Wash & Central)

**APEX MINING CO**

Box 86, Mineral Point, Mo  
MINE, Wash Co, barite

**ARKANSAS GYPSUM CO**

Murfreesboro, Ark  
Pres & Gen Mgr: Vernon B Lewis  
GYPSUM MINE, Pike Co, Kans  
GYPSUM MINE, Murfreesboro,  
underground & surface  
Prod: 3,000 tons per month

**ARKANSAS LIMESTONE CO**

Cushman, Ark  
MINE, Independence Co, Ark, Mn

**B F & H MINES, INC**

2920 Main St, Joplin, Mo  
Pres: Harris S Smith  
VP: W D Hughes  
Sec: Myra C Smith  
BULL FROG MINE, 2 mi NW of  
Joplin, underground, Zn, Pb  
Prod: 200 tons  
Mine Supt: Harris S Smith

**BADGETT MINE**

STRIPPING CORP  
Joplin, Mo  
Res Mgr: R V Gaines  
BROWN BADGETT MINE,  
Kelsey Norman Tract,  
strip oper, Pb, Zn, idle  
WASH PL  
300-TON GRAV-FLOT MILL

**BARYTES MINING CO**

Box 85-A, Putasi, Mo  
MINE, Wash Co, Mo,  
barite strip

**BASIC REFRACTORIES, INC**

845 Hanna Bldg, Cleveland 15, Ohio  
Pres: H P Eells, Jr  
Mgr Oper: Max Muller  
Purch Agt: G H Rutherford  
MAPLE GROVE QUARRY & PL,  
Maple Grove, Seneca Co, Ohio,  
surface, dolomite  
Supt: H C Bonnell  
Prod: 1,800,000 tons per year  
(See Nevada)

**BECK MINING DIV, INC**

Box 408, Miami, Okla  
Pres & Gen Mgr: G W Beck III  
Sec-Treas: M F Beck  
BECK #1 GRAV FLOT MILL, 1 mi E  
of Picher, Okla  
Prod: 600 tons, custom

**BIG FOUR MINING CO**

Picher, Okla  
MINE, Pb, Zn

**BINGHAM MINING CO**  
Box 356, Picher, Okla  
Mgr: John Henderson  
MINES, Picher-Cardin, Okla.,  
Zn, Pb

**BIRTHDAY MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**BISHOP MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**BOB WHITE MINING CO**  
Box 577, Miami, Okla  
CHUBB, CHEROKEE MINES,  
Blue Mound dist, Kans, Zn, Pb  
Supt: Jack Osborne

**BONANZA MINING CO**  
Box 305, Picher, Okla  
MINE, Zn, Pb  
Oper: Wilmer Ingram & Assoc

**BONNIE MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**BUFFALO MINING CO**  
Box 240, Picher, Okla  
MINES, Picher-Cardin area, Pb, Zn  
Mgr: H L Childress

**BULL FROG MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**BUNNY K MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**BUTLER BROS**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Ch of Bd: Patrick Butler  
Pres: J H Thompson  
VPs: G W Humphrey, H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**C S & W MILLING CO**  
Box 577, Miami, Okla  
CLEANUP MILL on Slimes, Pb, Zn

**C & M MINING CO**  
Box 299, Baxter Springs, Kans  
MINE, Baxter Springs area, under-  
ground, Zn, Pb  
Supt: H G Milligan  
200-TON GRAV-FLOT MILL

**CADET MINING CO**  
Cadet, Mo  
Mgr: A H Long  
MINE & MILL, Wash Co, Mo,  
surface, barite

**CALUMET & HECLA, INC**  
People's Gas Bldg,  
122 S Michigan Ave,  
Chicago, Ill  
(See Lake Superior)

**CARDINAL MINING CO**  
Quapaw, Okla  
MINES, Picher-Cardin area, Zn, Pb  
Supt: C A Baker

**CARTER MNG & MLG CO**  
Mineral Point, Mo  
125-TON BARITE MILL,  
Mineral Point  
(Joint Oper: Superior Mining Co)

**CELOTEX CORP**  
Fort Clinton, Ohio  
AMERICAN #1 MINE, gypsum

**CERTAIN-TEED PROD CORP**  
Box 187, Blue Rapids, Kans  
MINES, Blue Rapids, underground,  
gypsum  
(See Tex, Lake Superior & East)

**CLEVELAND-CLIFFS IRON CO**  
1460 Union Commerce Bldg,  
Cleveland, Ohio  
Pres: A C Brown  
Gen Mgr: C W Allen  
(See Lake Superior)

**CONNELLY & GONCE**  
North Willow, Baxter Springs,  
Kansas  
MINE, Picher, Okla, Zn, Pb

**CONNOR INVESTMENT CO**  
329 Joplin St, Joplin, Mo  
Pres & Gen Mgr: Ralph L Nolan

VP: M O'Connor  
Sec: G A Wadleigh  
Lessor of Mine Claims

**CONSOL CHEM IND, INC**  
Arch St (Box 65) Little Rock, Ark  
Gen Mgr: E S Rothrock  
Asst Gen Mgr: C M Hickey  
Geol & Met: S M Stelling  
PEISER SPUR MINE, 5 mi S of  
Little Rock, surf, bauxite concn &  
crude ore, crude roasted clay,  
byproduct magnetic iron oxide  
Mine & Mill Supt: E J Creider  
Asst Mine Supt: K W Guertin  
100-TON MILL, Pulaski Co, Ark,  
drying, grinding & magnetic separation  
(See Texas)

**CONSUMERS ORE CO**  
1300 Leader Bldg, Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: G W Humphrey, P G Harrison  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**CONTACT MINING CO, INC**  
10 E Central Ave, Miami, Okla  
Pres: Orville Moore  
VP & Gen Supt: Finis Bryan  
Sec & Gen Mgr: V W Sapp  
CONTACT MINE, R R, Baxter  
Springs, Kansas, undergrd, Pb, Zn  
Prod: 250 tons

**CORONADO MINES INC**  
208 Wright Bldg, Tulsa, Okla  
Pres: Milton Leon  
VP: S P Bowyer  
Sec-Treas: A F Bourne  
(See Ariz)

**CRAIG MINING CO**  
212 Engineers Bldg, Joplin, Mo  
Mgr: F F Craig  
MINES, Century, Okla

**CROUCH MNG CO,**  
SUBSID OF GEN ABRASIVE  
CO, INC

Box 117, Bauxite, Ark  
Pl & Mine Mgr: L M Richard  
YOUNG MINE, underground,  
bauxite  
Idle  
Mine & Mill Supt: Charles  
Van Ness  
200-TON CALCINING KILN  
(See East)

**CURTIS, L**  
Fletcher, Mo  
BARITE PITS, Wash Co, Pb, Zn

**DALE MINING CO**  
811 Kentland, Neosho, Mo  
Partners: D P G Kiepinger &  
J A Worley  
Elec Engr: F E Griffith  
Mech Engr: Herb Troxel  
MINES, Stark City & Iroma, Mo,  
underground, Pb, Zn  
Prod: 600 tons  
Mine Foremen: Boyd Mitchell,  
Alvin Cooper  
600-TON GRAV-FLOT MILL  
Mill Foreman: Frank Crabb

**DeSOTO MINING CO**  
228 S Main St, DeSoto, Mo  
MINE & MILL, surface, barite

**DICKEY & REYNOLDS**  
Potosi, Mo  
MINE & MILL, Wash Co, Mo,  
surface, barite

**DILLINGER, J R**  
Box 608, Potosi, Mo  
MINE & MILL, Wash Co, Mo,  
barite strip

**DINES MINING CO**  
Baxter Springs, Kans  
BLUE MOUND GRAV FLOT  
MILL, Zn, Pb  
Supt: H G Weidman  
Prod: 30,000 tons per year

**DODSON MINING CO**  
Picher, Okla  
Oper: Tim Jones  
MINES, Picher, Okla, Zn, Pb

**DOUGLAS MINING CO**  
1300 Leader Bldg, Cleveland 14,  
Ohio  
Pres: J H Thompson  
VPs: G W Humphrey,  
P G Harrison,  
H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**DRYER MINING CO**  
Commerce, Okla  
SOUTH SIDE MINE, 2 mi E of  
Commerce, Pb, Zn  
Mgr: Jake Dryer

**DULIN BAUXITE CO**  
Sweet Home, Ark  
MINE, Pulaski Co, bauxite

**DUNCAN MINING CO**  
212 Chateau Ave,  
Baxter Springs, Kans  
Owner: G W Duncan  
MINE, Baxter Springs area, Pb, Zn

**EAGLE Picher CO,**  
MINING & SMELTING DIV  
First Natl Bank Bldg,  
Miami, Okla  
Pres: T Spencer Shore  
VP & Gen Mgr: Elmer Isern  
Compt: G H Walbert  
Dir of Mines: J W Chandler  
Dir of Mills: E H Crabtree, Jr  
Dir of Pers: E C Mabon  
Dir of Ins: K E Kimmel  
MINES, Tri-State Area, Zn, Pb  
Office Address: Cardin, Okla  
Gen Mgr: H W Harrison  
Gen Supt: S S Clarke  
Mill Supt: Fred Phelps  
KANSAS: Big John, Leopard,  
Webber, Westside #2, Foley #3 &  
Wilbur

OKLA: Wilson, Blue Goose, Buffalo,  
Goodeagle #3, Gordon, Grace Walker,  
John Beaver, Lottson, Piokee, Slim  
Jim, See Sah & Southside #2  
CENTRAL GRAV-FLOT MILL, Cardin,  
15,000 Tons  
ZINC SMELTER, Henryetta, Okla  
Mgr: F G McCutcheon  
GRAHAM CENTRAL MINE & MILL,  
Galena, Ill, Zn, Pb  
Mgr: Claude O Dale  
MUNCIE MINE, Baxter Springs, Kans,  
Pb, Zn  
LEAD SMELTER, Galena, Kans  
Mgr: Fred Clearman  
(See Ariz, Nev & Lake Superior)

**FEDERAL MNG & SMLTG CO,**  
WHOLLY-OWNED SUBSID OF  
AMER SMELTING & REFINING CO  
CENTRAL DIV, Baxter Springs, Kans  
Gen Supt: W C Ball  
GORDON MINE, Northside, Okla, Pb, Zn  
DUTENWEG MINE, Jasper, Mo, Pb, Zn  
(See Idaho)

**FRJO MINING CO**  
312 Wall St, Joplin, Mo  
Pres: C H Frost  
VP: R C Coffin  
Sec: John Frost  
Gen Mgr: T C King  
Gen Supt: Dave Simpson  
Elec Engr: Marvin Henderson  
EXPRESS MINE, Neck City, Mo, 15 mi  
N of Joplin, surface, Zn, Pb  
Under devel  
Prod: 4,000 tons  
Mine Engr: R McIntyre  
4,000-TON GRAV-FLOT MILL,  
Purcell, Mo  
Mill Supt: Henry Sexton

**GLIDDEN COMPANY,**  
CHEMICAL, PIGMENTS &  
METALS DIVISION  
Union Commerce Bldg,  
Cleveland, Ohio  
Gen Sales Mgr: R B Quelos  
(See Calif)

**GRACE JARRETT MINING CO**  
Box 73, Picher, Okla  
Mgr: W A Childress  
FEDERAL-JARRETT MINE, Kans

**GRAY MINING & DEVEL CO**  
Cardin, Okla  
MINE, Pb, Zn

**H & P MINING CO**  
Potosi, Mo  
Oper: Homer Polettle  
MINE & MILL, Wash Co, Mo,  
surface, barite

**H & S MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**HANNA, THE M A, CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Agent for the following companies:  
Butler Bros, Consumers Ore Co,  
Douglas Mining Co, Hanna Coal &  
Ore Corp, Hanna Iron Ore Co,  
Hanna Ore Mining Co, Mahland  
Ore Co, Morton Ore Co, Ozark  
Ore Co, Philbin Mining Co,  
Richmond Iron Co, South Agnew  
Mining Co  
(See M A Hanna, Oregon)

**HANNA COAL & ORE CORP**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: R C Fish, P G Harrison,  
G W Humphrey, A B Kern,  
H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: W C Pieper  
(See Lake Superior)

**HANNA IRON ORE CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: P G Harrison, G W Humphrey,  
H L Pierce  
Sec & VP: Paul E Schroads  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**HANNA ORE MINING CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: G W Humphrey, P G Harrison,  
H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**HARRIS MINING CO, INC**  
440 E 12th, Baxter Springs, Kans  
Pres & Gen Mgr: Loren Keenan  
VP & Supt: A T Harris  
Sec-Treas: Robert Nichols  
GOLDEN ROD, FARMINGTON &  
LUCKY JENNY MINES, 5 mi SW  
of Baxter Springs, undergrd, Zn, Pb  
Prod: 450 tons  
Mech Engr: Burl Smith  
600-TON GRAV-FLOT MILL,  
Hockerville, Okla  
Supt: Lyndon Smith

**HECKENBOTTOM & McCURRY**  
Harrison, Ark  
NORTH ARKANSAS MINE, Zn

**HECKS CREEK**  
FLUORSPAR MNG CO  
Elizabethtown, Ill  
DOUGLAS MINE, Pope Co,  
Ill, CaF<sub>2</sub>

**HEDGES & HEVER**  
Compton, Ark  
BREWER MINES, near  
Compton, Pb

**HEGLER ZINC CO**  
Danville, Ill  
DANVILLE SMELTER, Zn

**HELEN H MINING CO**  
Box 326, Baxter Springs, Kans  
MINES, Baxter Springs, Kans &  
Picher-Cardin, Okla areas, Zn, Pb  
Mgr: Claude Jones  
700-TON GRAV-FLOT MILL

**HORNSEY, FRED & CO**  
Potosi, Mo  
MINE, Wash Co, barite strip

**HOWELL MINING CO**  
Mineral Point, Mo  
MINES, Wash Co, barite strip

**HUFF, GEORGE, MNG CO**  
Cardin, Okla  
MINE, Pb, Zn

**HUGHES, W A & SON**  
1801 S Oronogo St, Webb City, Mo  
Gen Mgr: W A Hughes  
MINE, Pb, Zn  
20-TON FLOT MILL

**INLAND STEEL CO**  
First Natl Bank Bldg,  
Chicago 3, Ill  
Pres: Clarence B Randall  
VP: P D Block, Jr  
Sec: Graydon Megan  
Gen Mgr: Carl B Jacobs  
Gen Supt: R D Satterley  
Geol: A T Broderick  
Mech Engr: E W Peterson  
Safety Engr: E C Leonard  
(See Lake Superior & South)

**INTERNATL MINING & CHEMICAL CORP**  
20 N Wacker Dr, Chicago 5, Ill  
Pres: Louis Ware  
Exec VP: James P Margeson, Jr  
VPs: M H Lockwood, G W Moyers,  
A N Into, P D V Manning, J R Bishop  
VP & Treas: R P Reech, N J Dunberk  
VP & Gen Counsel: E D McDougal, Jr,  
T M Ware  
Corp Sec: C M Edwards  
Purch Agt: John P Burrows



**MINES, Bonclay & Lawco, Ohio,**  
surface, clay  
Mgr: G D Anderson  
Supt, Bonclay: C Queen  
Supt, Lawco: L Brisker  
300-TON MILL, Bonclay, grinding  
& pulverizing  
300-TON MILL, Lawco, grinding &  
pulverizing  
(See Ariz, Colo, Mont, New Mex;  
So Dak, Wyo, Central, South & East)

**LAWRENCE CO MNG &  
MLG CO**  
318 N Joplin Ave, Joplin, Mo  
VP: Dave Mattes  
MINES, Lawrence Co, Mo, Zn, Pb  
GRAV-FLOT MILL  
Idle

**LINDA LOU MINING CO**  
Box 81, Miami, Okla  
Mgr: Al White  
Idle

**LITTLE BEN MINING CO**  
Box 229, Baxter Springs, Kans  
Mgr: H G Milligan

**LITTLE PAT MINING CO**  
Box 908, Miami, Okla  
MINES, Picher & Quapaw, Okla,  
Zn, Pb  
Oper: Hugh Wright

**LIZA JANE MNG CO**  
Box 342, Baxter Springs, Kans  
Pres & Gen Mgr: R W Love  
Sec: Warren E Estes  
Mech Engr: Fred E White  
LIZA JANE MINE, 1 mi W of  
Baxter Springs, undergrd, Zn, Pb  
Idle

**MAGNET COVE BARIUM CORP**  
123 Oil & Gas Bldg, Denver, Colo  
Pres: Willard M Johnson  
VP: Orven Van Dyke  
Sec: Floyd Enz  
Prod Mgr: C F Talbot  
Gen Supt: John E Tobler  
Geol: Dr Walter E Pond  
Met: Richard J Menze  
MAGNET COVE MINE, Malvern,  
Ark, 15 mi SE of Hot Springs,  
underground, Ba  
Mine Supt: John E Starks  
FLOT MILL, Malvern  
Mill Supt: Elmer Costen

**MAHLAND ORE CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: P D Block, Jr, G W Humphrey,  
H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**MAHUTSKA MINING CO**  
Box 241, Picher, Okla  
MINE, Picher-Cardin area, Zn, Pb

**MANGAS MINING CO**  
Joplin, Okla  
MINE, Pb, Zn

**MARK TWAIN MINING CO**  
Box 241, Picher, Okla  
Mgr: W L Childress  
BLUE MOUND MINE, Kansas  
AZTEC MINE, Picher-Cardin  
area, Okla, Zn, Pb

**MATTHIESSEN &  
HEGELER ZINC**  
LaSalle, Ill  
LASALLE WORKS, LaSalle, Zn

**MELROSE MINING CO**  
Rt 2, Baxter Springs, Kans  
Oper: John W Powers & Assoc  
MINES, Picher, Okla, Zn, Pb

**MID-CENTURY MNG CO**  
Box 308, Picher, Okla  
Owner: John Henderson  
MINES, Picher-Cardin area, Zn, Pb

**MIDWEST MINING CO**  
Box 87, Potosi, Mo  
MINE & MILL, Wash Co, Mo,  
barite strip

**MIDWEST MNG & MLG CO**  
Fredericktown, Mo  
Pres: Henry Cross  
VP & Gen Mgr: E L Petly  
Purch Agt: C H Sianey  
CATHERINE & FLEMING MINES,  
underground, Pb  
Prod: 75 tons  
Under devel  
GRAV FLOT MILL  
Supt: Floyd Rogers

**MINERVA OIL CO, MNG DIV**  
Myers Bldg (Box 531),  
Eldorado, Ill  
Pres: Joseph Desloge  
VP: J H Steinmesch  
Sec: Berkley Jones  
Gen Mgr: Gill Montgomery  
Geol: C W Shaw  
Met: Durward Spees  
Purch Agt: S J Kelly  
MINERVA #1 MINE, Cave-in-Rock,  
Ill, underground, CaF<sub>2</sub>, Zn  
Mine Supt: C F Callahan  
Mine Foreman: Joseph Doggett  
325-TON FLOT MILL  
Mill Supt: O E Anderson  
Assayer: C B Rash  
CRYSTAL FLUORSPAR, Rt 1,  
Elizabethtown, Ill, 4 mi NW of  
Cave-in-Rock, undergrd, met  
grade CaF<sub>2</sub>  
Prod: 200 tons  
Mine Supt: D B Holbrook  
Foreman, #4 shaft: Harry Gibbs  
Foreman, #8 shaft: Ray Dutton  
350-TON HV MEDIA MILL  
Supt: I V Robertson  
Foreman: Herman Stum  
JEFFERSON MINE, 5 mi W of  
Rosiclare, Ill, undergrd, CaF<sub>2</sub>,  
Zn, Pb, idle  
ROSE CREEK MINE, 2 mi E of  
Herod, Ill, undergrd, CaF<sub>2</sub>, idle

**MONSANTO CHEM CO**  
St Louis 4, Mo  
Ch of Bd: Edgar M Queeny  
Pres: Charles Allen Thomas  
PHOSPHATE DIV, St Louis  
Gen Mgr: J L Christian  
Div Engr: W T Durrett  
MINES & PL, Monsanto, Tenn,  
elemental phosphorus  
Pl Mgr: Edward J Hock  
MINES & PL, Soda Springs, Ida,  
elemental phosphorus (under const)  
Pl Mgr: John E Gurvin  
(See South)

**MONTREAL MINING CO**  
Hanna Bldg (Box 6508)  
Cleveland 14, Ohio  
Pres: G G Wade  
VP: Courtney Burton  
Sec: A C Bishop  
(See Oglebay Norton & Co &  
Montreal Mng Co, Lake Superior)

**MORTON ORE CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: P D Block, Jr, G W Humphrey,  
H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**NANCY ANNA MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**NATL GYPSUM CO**  
MINE & PLANT, Medicine  
Lodge, Kans, undergrd, gypsum  
Pl Mgr: D C Chads  
Mine Supt: S J Shepler  
QUARRY & PLANT, Ft Dodge,  
Iowa, gypsum  
Pl Mgr: H J Marsham  
Quarry Supt: J B Pitts, Jr  
QUARRY & PLANT, Luckey,  
Ohio, limestone  
Pl Mgr: F C Mallory  
Quarry Supt: J W DeMarco  
QUARRY & PL, Gibsonburg,  
Ohio, lime  
Pl Mgr: J C Downey  
Quarry Supt: F F Fehhaber  
(See Tex, Lake Superior,  
South & East)

**NATL LEAD CO**  
BAROID SALES DIVISION  
MAGNET COVE PLANT,  
Malvern, Ark, surface,  
barite  
GRAV & CHEM MILL  
Supt: E H Muchison  
FOUNTAIN FARM, Potosi, Mo,  
surface, barite  
GRAV MILL  
Supt: E L H Sackett  
ST LOUIS SMELTING &  
REFINING DIV  
Mgr: Harold A Krueger  
SOUTHEAST MISSOURI OPER,  
Box 351, Fredericktown, Mo,  
Pb, Cu, Ni, Co  
1,350-TON FLOT MILL  
Actg Gen Supt: J A Rood  
Ref Pl Mgr: L T Eck  
TRI-STATE OPER, Box 30,  
Baxter Springs, Kans, Zn, Pb  
2,100-TON MILL  
Gen Supt: K A Nobs  
(See Calif, Nev, So Dak, Tex,  
Wyo & East)

**NORTON CO**  
BAUXITE MINE, Bauxite, Ark  
(See East)

**OZARK-MAHONING CO,**  
MINING DIVISION  
Rosiclare, Ill  
Pres: Park Kelley  
VP & Gen Mgr: J G Trewartha  
Gen Supt: H E Baillie  
Met: R J Hull  
Geol: A G Johnson  
Purch Agt: J L Cadden  
ILLINOIS MINE, 14 mi NE of  
Rosiclare, undergrd, CaF<sub>2</sub>, Pb, Zn  
Mine Supt: V G Smith  
Mine Engr: E A Brecke  
FLOT MILL, Rosiclare  
Mill Supt: R A Sperberg  
Assayer: Walter Millhouse  
(See Colo, New Mex & East)

**OZARK ORE CO,**  
SUBSID OF M A HANNA CO  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: G W Humphrey, P G  
Harrison, H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
Dist Supt: W F Shimmers  
OZARK GROUP MINE, Iron Mt, Mo,  
underground & surface, iron ore  
Asst Mine Supt: H F Lee  
Mine Foreman: Bruno Setitto  
Mine Engr: R Pilliard  
3,000-TON GRAV MILL  
Mill Supt: A E Cameron  
Assayer: J W Trelour

**OZARK ORE CO,**  
SUBSID OF M A HANNA CO  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: G W Humphrey, P G  
Harrison, H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
Dist Supt: W F Shimmers  
OZARK GROUP MINE, Iron Mt, Mo,  
underground & surface, iron ore  
Asst Mine Supt: H F Lee  
Mine Foreman: Bruno Setitto  
Mine Engr: R Pilliard  
3,000-TON GRAV MILL  
Mill Supt: A E Cameron  
Assayer: J W Trelour

**PATTY ANN MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**PHILBIN MINING CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: P D Block, Jr,  
G W Humphrey, H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**POROCAL CORP**  
210 W Washington Square,  
Philadelphia 5, Pa  
MILL, Pulaski Co, Ark, bauxite

**POTTER SIMS MINES INC**  
Box 299, Joplin, Mo  
JASPER & SNAPP MINES,  
Jasper Co, Zn, Pb  
SUCKER FLAT & SNAPP MILLS

**PRIMROSE, HARRY**  
Ponca, Ark  
PRIMROSE MINE, Newton Co, Zn, Pb  
Idle

**REPUBLIC STEEL CORP**  
25 Prospect Ave NW, Cleveland, Ohio  
Pres: C M White  
VP: W M Kelley  
Asst VP: E B Winning  
Purch Agt: F J Laskey  
(See Lake Superior & East)

**RESERVE MINING CO**  
(Owned by Republic & Armco  
Steel Corp)  
Guidhall Bldg, Cleveland 15, Ohio  
Pres: C M White  
VP: C L Kingsbury  
VP, Chg Oper: W M Kelley  
Sec: G C Nichols  
Controller: J William Bryant  
Mgr, Oper: R J Linney  
Asst Mgr, Oper: John Dunlop  
Exec Super, Engr: F M Danner  
Consul Engr: I H Wynne  
Prep Engr: Oscar Lee  
Dir, Pub Rel: Edward Schmid, Jr  
Dir, Indus Rel: D S Wilkin  
(See Lake Superior)

**RESIDJE MINING CO**  
Box 95, Picher, Okla  
MINE, Picher-Cardin area, Pb, Zn  
Mgr: Boliver Green

**REYNOLDS MINING CORP**  
Boyle Bldg, Little Rock, Ark  
MINES, Saline & Pulaski Cos, Ark,  
underground & surf, bauxite,  
fluorspar  
(See Ariz, Colo, South)

**RICHMOND IRON CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: J H Thompson  
VPs: C W Beck, P G Harrison,  
G W Humphrey, H L Pierce  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**ROANOKE MNG CO**  
Box 366, Picher, Okla  
Pres & Gen Mgr: J K Turner  
VP: C W Ingram  
Sec: W A Brewer  
HOMESTAKE & STUTLEY MINES  
1 mi W of Baxter Springs, Kans,  
underground, Zn, Pb  
Idle  
Mine Foreman: Raymond Harter

**ROARK, J M & SONS CO**  
Anderson, Mo  
Pres: Tim Roark  
VP & Gen Mgr: John Roark  
ROARK MINE, 3 mi from Joplin, Mo,  
Pb, Zn  
Supt: Claude Roark  
300-TON FLOT MILL, Chattanooga

**S S & C MINING CO**  
Box 241, Picher, Okla  
Oper: Ben Clara & Assoc  
MINE, Blue Mountain, Kans, Zn, Pb

**ST JAMES MINING CO**  
Hanna Bldg, Cleveland 14, Ohio  
Pres: A F Peterson  
VPs: C L Kingsbury, H S Taylor  
Sec: G C Nichols  
Treas: E W Sloan, Jr  
(See Oglebay Norton & St James  
Lake Superior)

**ST JOSEPH LEAD CO**  
Bonne Terre, Mo  
Gen Mgr: B F Murphy  
Div Mgr: Elmer A Jones  
Met: Ed J Haug  
Geol: Dr John S Brown  
Safety Engr: J L McGregg  
BONNE TERRE, LEADWOOD,  
DESLOGE & FEDERAL MINES,  
Bonne Terre, 60-70 mi S of  
St Louis, underground, Pb  
Prod: 21,000 tons  
Gen Mine Supt: R T Murrill  
Asst Gen Mine Supts: Carl B  
Davis, B T Wyckoff  
FOUR GRAV-FLOT MILLS  
Capacity: 28,000 tons  
Gen Mill Supt: T J Clifford  
Mill Supts: M N Dunlap,  
E F Dowd, H A Hoffman, H R Stiel  
BLAST FURNACE, Herculaneum, Mo  
Prod: Approx 100,000 tons Pb per yr.  
Div Mgr: W T Isbell  
Asst Supt: J O McLellan  
(See East)

**ST LOUIS MNG & MLG CORP**  
Box 508, Joplin, Mo  
Pres: Edwin B Messner  
Sec: Edwin B Messner, Jr  
Purch Agt: C H Isaacs  
MINE, 6 mi NW of Joplin,  
underground, Zn, Pb  
250-TON CUSTOM MILL  
Idle

**ST REGIS MINING CO**  
Box 752, Duenweg, Mo  
MINE, Duenweg, Missouri area  
Supt: Harold Fenix

**SEMPLE, C Y**  
Baxter Springs, Kans  
3,000-TON GRAV FLOT MILL, Ida  
BALLARD MINE, surface, Ida  
MINE, Cherokee Co, Kans, idle  
Supt: E N Smith  
Mech Engr: Roy Figg

**SHENANDOAH-DIVES MNG CO**  
616 Finance Bldg, Kansas City, Mo  
Pres: J W Oldham  
(See Colo)

**SIMMS, C C**  
Cushman, Ark  
MINE, Independence Co, Ark, Mo

**SOONER MLG CO, INC**  
Box 385, Picher, Okla  
Pres & Gen Mgr: L R Hill  
VP & Mill Supt: John Norman  
Sec-Treas: H O Gray  
SOONER TAILING MILL, 1/2 mi  
NE of Picher, 2,000-ton grav-  
flot, Zn, S  
Asst Mill Supt: E D Shoemaker  
Mill Foreman: N W Barnes  
Master Mech: O E Hainfield  
Idle

**SOUTH AGNEW MNG CO**  
1300 Leader Bldg,  
Cleveland 14, Ohio  
Pres: A F Peterson  
VPs: G W Humphrey, H L Pierce,  
J H Thompson  
Sec: L W Spang  
Treas & Asst Sec: C W Gardner  
(See Lake Superior)

**STANDARD MINING CO**  
131 W. Main St., Batesville, Ark  
Mgt: W. J. Samuels  
MINE, Independence Co., Mo

**SUPERIOR MINING CO**  
Potosi, Mo  
125-TON WHITE MILL, Mineral  
Point  
(Joint Oper.) J E Carter M & M Co)

**TERRACE MINING CO**  
Potosi, Mo  
MINE & Mill, Wash Co., Mo,  
barite 1500

**TIGER MINING CO**  
Box 366, Picher, Okla  
Pres: H. D. Youngman  
VP: C. W. Ingram, Jr  
Sec: H. B. Saunders  
Gen Mgr: O. H. Burns  
FOX MINE, 1 mi W of Treece, Kans,  
underground, Zn, Pb  
Mine Foreman: Raymond Kennedy  
Idle

**TONGAH MINE CO**  
Box 366, Picher, Okla  
Pres: Clarence A. Miller  
VP & Gen Mgr: O. K. Tucker  
Sec: W. A. Brewer  
KITTY MINE, 2 mi W of Picher,  
underground, Zn, Pb  
Prod: 150 tons  
Mine Foreman: Leslie L. Marcus

**TRI-STATE ZINC, INC**  
Galena, Ill  
MINE, underground, Zn, Pb  
Prod: 150 tons  
FLOT MILL  
(See East)

**TUCK MINING CO**  
First State Bank, Picher, Okla  
Pres & Gen Mgr: O. K. Tucker  
VP: Ralph Chambers  
Sec: Albert Brewer  
WILSON MINE, 2 mi SW of Picher,  
underground, Zn, Pb  
Under devel  
Prod: 300 tons  
Mine Foreman: Raymond Harper

**UNIVERSAL ATLAS  
CEMENT CO**  
100 Park Ave., New York 17,  
New York  
WATONGA MINE, Blaine Co.,  
Okla, surface, gypsum

**U S GYPSUM CO**  
300 W. Adams, Chicago 6, Ill  
Ch of Bld: C. H. Shaver  
Pres: O. M. Knode  
VPs: H. F. Sadler, Edward Rembert,  
J. H. Nold, E. W. Carey  
Sec & Asst Treas: A. W. Irwin  
Asst Secs: N. A. Lang, L. W. Austin  
Asst Treas: G. W. Clarke  
Ch Engr, Mines: J. F. Harvard  
MINE, Ft Dodge, Iowa, gypsum  
MINE, Gypsum, Ohio, underground,  
gypsum  
(See Calif, Colo, Mont, Nev, Tex,  
Utah, Wash, Lake Superior, South  
& East)

**U S LEAD REFINERY, INC**  
SUBSID OF U S SMELTING, REFINING  
& MINING CO  
East Chicago, Ind  
EAST CHICAGO PL, E Chicago, Pb

**U S STEEL CORP.,  
AMERICAN STEEL & WIRE DIV**  
Rockefeller Bldg,  
Cleveland 13, Ohio  
Pres: W. F. Munford  
VP: V. H. Leichter  
(See Mont, Utah, Lake Superior,  
South & East)

**VICTOR CHEMICAL WORKS**  
141 W. Jackson Blvd, Chicago 4, Ill  
Pres: Rothe Weigel  
(See Calif, Mont, South & East)

**W L B MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**W M & W MINING CO, INC**  
Box 326, Baxter Springs, Kans  
Pres & Gen Mgr: E. G. Mattison  
VP: Ralph Chambers  
Sec & Geol: Ferrel E. Williams  
Elec Engr: J. D. Helmick  
BREWSTER-HUTTIG, 1 1/2 mi W  
of Hockerville, Okla, underground,  
Zn, Pb  
Prod: 250 tons  
Mine Foreman: Jess O. Ditson  
250-TON FLOT MILL, 2 mi NW of  
Baxter Springs  
Mill Supt: Harry Lanham

**WADE REA MINING CO**  
Galena, Kans  
WADE HUNTER MINE, Quapaw  
area, Pb, Zn  
Mgr: Otis Wade  
GRAV FLOT MILL, Zn

**WESAH MINING CO**  
Box 246, Treece, Kans  
Mgr: Tom Kiser  
MINE, Cardin, Okla, Zn, Pb

**WESTMORELAND  
MANGANESE CORP**  
Box 42, Batesville, Ark  
Pres & Gen Mgr: O. E. Sellers  
VP: Herman Miller  
Sec: W. H. Specht  
Gen Supt: R. T. Chapman  
Met: W. S. Stringham  
Purch Agt: H. H. Holloway  
MINE, 6 mi N of Cushman,  
Ark, surface, Mn  
Under devel  
Prod: 6,000 tons  
Mine Supt: R. T. McDonald  
6,000-TON HV MEDIA MILL  
Mill Supt: C. H. Jacoby

**WHALEY & SCOTT  
MNG CO, INC**  
Mineral Point, Mo  
MINE & MILL, Wash Co., Mo,  
barite strip

**WHISKBROOM MNG CO**  
Picher, Okla  
MINE, Pb, Zn

**WHITMAN MINING CO**  
Picher, Okla  
MINE, Pb, Zn

**WOLF, H. A**  
Cadet, Mo  
MINE & MILL, Wash Co., Mo,  
surface, barite

**ZONOLITE CO**  
135 La Salle St., Chicago, Ill  
Pres: A. T. Kearney  
VP: J. B. Myers  
VP & Treas: W. J. Bein  
Purch Agt: B. J. Dorrington  
(See Mont & South)

## SOUTH

ALA, FLA, GA, KY, LA, MISS,  
N. C, S. C, TENN, VA

**ALABAMA FLAKE  
GRAPHITE**  
420 Comer Bldg,  
Birmingham, Ala  
Pres: W. L. Shumate, Jr  
VP: H. E. Haworth  
VP & Gen Mgr: W. L. Moore  
Sec: A. L. Crumpton  
Met: L. B. Adams  
Geol: L. H. Williams  
POCAHONTAS MINE, Ashland,  
Ala, graphite, surface  
POCAHONTAS MILL, 200-ton flot

**ALLIED CHEM & DYE  
CORP., GEN CHEM DIV**  
Galax, Va  
GROSSAN MINES, 6 mi N of  
Galax, undergrd, pyrrhotite  
Supt: Fred E. Johnson  
Mine Foreman: R. F. Dillon  
FLOT-GRAV MILL  
Mill Foreman: O. W. Manuel  
(See Colo, New Mex, Central & East)

**ALCOA MINING CO,  
FLUORSAPAR DIV**  
Salem, Ky  
HUTSON MINE, 3 mi SW of  
Salem, underground, Zn  
Prod: 100 tons  
Mine Supt: Philip Dorrance  
Mine Foreman: R. Hoover  
100-TON FLOT MILL  
Assayer: H. Shouse  
EUFULA MINE & MILL,  
Eufaula, Ala, surface,  
bauxite ore  
Mgr: Earl Wilson

**AMERICAN AGRI  
CHEM CO**  
Pierce, Fla  
PEBBLE MINE, phosphate  
rock  
(See East)

**AMERICAN COLLOID CO**  
Aberdeen, Miss  
Gen Mgr: Paul Bechtner  
PANTHER CREEK MINES,

near Aberdeen, Miss, placer,  
bentonite  
Prod: 150 tons  
Mine Supt: Claud Acord  
Asst Mine Supt: Edward  
Birkholz  
150-TON MILL  
(See So Dak, Wyo & Central)

**AMERICAN CYANAMID CO**  
SADDLE CR MINE, Brewster, Fla,  
surface, phosphate rock  
3,000-TON GRAV-FLOT MILL  
SYDNEY MINE, Brewster, Fla,  
surface, phosphate rock  
1,800-TON HMS MILL  
Mgr: Arthur Crago  
CALCO CHEM DIV, Piney Riv, Va  
Gen Mgr: W. J. Cawenberg  
Gen Supt: C. J. Kirkland  
Prod Supt: C. E. Craven  
Purch Agt: C. V. Holshouser  
PINEY RIVER MINE, Piney River,  
Tenn  
Supt: S. V. Wilkins  
PINEY RIVER MILL, 400-ton flot  
(See Central & East)

**AMERICAN ZINC CO  
OF TENN.,  
SUBSID OF AMERICAN ZINC,  
LEAD & SMELTING CO**  
Mascot, Tenn  
Pres: H. I. Young  
Gen Supt: H. A. Coy  
Asst Gen Supt: William Black  
Purch Agt: C. C. Sisk  
MASCOT #2 MINE, Mascot, Zn  
GRASSELLI MINE, New Market,  
Tenn, Zn  
JARNAGIN & ATHLETIC MINES,  
Jefferson City, Tenn, Zn  
Supt: M. J. Langley  
Engr: W. H. Johnson  
Mech & Elec Engr: I. C. Mitchell  
Safety Engr: Harold Thompson  
Ch Geol: C. R. L. Oder  
NORTH FRIENDS STATION  
MINE, 8 1/2 mi E of Mascot, Zn  
FLOT, HMS, JIG MILLS  
Supt: D. B. Grove  
Asst Supt: R. B. Brackin  
Met: Jim Polhemus  
Assay: D. E. Chadwick  
Prod: 4,100 tons  
(See Amer Zinc-Ill, Central &  
Texas, American Zinc, Lead &  
Smelting, Wash & Central)

**APPALACHIAN MNG &  
SMELTING CORP**  
Embsville, Tenn  
Pres: G. R. Warren  
MINE, Pb, Zn

**ARMOUR FERTILIZER  
WORKS**  
Columbia, Tenn  
Supt: W. B. King  
PHOSPHATE MINE

**ARRINGTON MINING CO**  
Cedartown, Ga  
Pres: C. B. Arrington  
IRON MINE

**BARTOW MINING CO**  
Cartersville, Ga  
Owner: George Shropshire  
IRON MINE

**BLUE RIDGE TALC CO**  
Box 7, Henry, Va  
Pres: E. D. Gregory  
VP & Gen Mgr: C. O. Kitson  
Sec: J. C. Looney  
Supt: R. K. Kitson  
KING-RAMSEY MINE, Henry,  
soapstone  
Foreman: Roy Cannady  
KING-RAMSEY MILL, 45-ton

**BRADLEY ESTATES, INC**  
Floral City, Fla  
PHOSPHATE MINE

**BUTLER & MOODIE**  
Salem, Ky  
KLONDYKE TAILING MILL,  
Salem, CaF<sub>2</sub>

**C & L FLUORSAPAR CO**  
Marion, Ky  
FLUORSAPAR MINES

**CAROLINA MINERALS  
CO, INC**  
Box 415, Bedford, Va  
HARRIS #2, WATSON, JOHNSON &  
SCOT & COX MINES, Bedford &  
Piney River, Va, feldspar, mica &  
quartz  
FLOT MILLS, Kona & Spruce Pine,  
N. C, feldspar

**COLLOIDAL PHOSPHATE  
SALES**

Box 1588, Tampa 1, Fla  
Pres: Chris Fagg  
VP: E. P. Fagg  
Sec: Treas & Gen Mgr: G. T. Dyer  
MINE, 1 mi E of Dunnellon, Fla,  
surface, colloidal phosphate  
HAMMER MILL

**COLUMBIA ROCK  
PRODUCTS CORP**  
Columbia, Tenn  
PHOSPHATE MINES

**COMMERCIALORES, INC**  
Clover, South Carolina  
Pres & Gen Mgr: A. H. Eckel  
VP: H. S. Dory  
Sec: R. E. Metz  
Gen Supt: S. J. Beers  
HENRY KNOB MINE, 4 mi W  
of Clover, surface, kyanite  
Prod: 500 tons  
Mine Foreman: Len Hardin  
500-TON FLOT MILL  
Mill Supt: John Staples  
Mill Foreman: Richard Lochmund,  
B. S. Hancock  
Main Foreman: Floyd J. Slaughter

**CONSOL CHEM IND INC**  
Box 17, Bastrop, La  
(See Texas & Central)

**CONSOL HIGH GRADE  
ORE CO**  
Box 532, Cleveland, Tenn  
Partners: G. S. I. B. & J. D. Murray  
HAMBRIGHT MINE, Dalton Pike,  
Tenn, hydraulic placer, Mn, Fe, idle  
HAMBRIGHT MILL, 50-ton grav, idle  
HEISKELL MINE, Sweetwater, Tenn,  
surface, Mn, Fe  
Prod: 30 tons  
Mine Supt: W. C. Mendenhall  
70-TON GRAV MILL

**CONYER, L**  
Salem, Ky  
CONYER MILL, CaF<sub>2</sub>

**CORONET PHOSPHATE CO**  
Plant City, Fla  
PHOSPHATE MINE

**CRIDER, J. WILLIS,  
FLUORSAPAR CO**  
Mexico, Ky  
Gen Mgr: B. M. Travis  
MCNEELY & MARBLE MINES,  
6 mi NE of Fredonia, Ky,  
underground, CaF<sub>2</sub>  
Prod: 25 tons  
100-TON GRAV-FLOT MILL

**DAVISON CHEM CORP.,  
PHOSPHATE ROCK DIV**  
Box 471, Bartow, Fla  
Div Mgr: A. T. Cole  
Purch Agt: E. J. Charette  
Supt, Oper: J. M. Harris  
Mgr, Prod Planning: J. L. Hunter  
Main Supt: E. J. Porcell  
Procedure Engr: E. L. Chapman  
Ch Engr: F. J. Lossion, Jr  
Ch Chem: C. D. McDowell  
Ch Elec: W. H. Hallman  
Safety Engr: J. R. Terry  
PAUWAY #4 MINE, Bartow, surf,  
phosphate  
Supt: W. A. Allen  
BONNY LAKE MINE, Bartow,  
surface, phosphate  
Supt: B. P. Jones  
RIDGEWOOD DRY MILL  
Supt: C. B. Hood  
(See East)

**DELHI FLUORSAPAR CORP**  
Marion, Ky  
Pres: Claude Fletcher  
**DOMINION MANGANESE  
CORP**  
Crimora, Va  
MINE, 15 mi NW of Waynesboro,  
surface, manganese ore  
Idle  
(See East)

**ELECTRO MANGANESE  
CORP**  
1323 Proctor St NW,  
Knoxville 16, Tenn  
Pres: E. M. Wanamaker  
VPs: R. H. Cromwell, T. W. Bennett  
Treas: Otto Neumann  
Sec: W. F. Ferris  
Supt: W. A. Parson  
Asst Gen Mgr: W. L. Chamberlain  
Research Engr: W. L. Hammerquist  
Const Engr: D. D. Forbes  
REFINERY, Knoxville, electro  
manganese  
Prod: 7,200,000 lbs per year

**EUTAW DEVEL CO**  
Cartersville, Ga  
Mgr: H. Styskal  
IRON MINE

**FARMER CONST CO**

Columbia, Tenn  
Supt: J G Farmer, Sr  
PHOSPHATE MINE

**FEDERAL CHEM CO**

Mt Pleasant, Tenn  
Mgt: D S Miller  
PHOSPHATE MINE

**FELDSPAR FLOTATION CO**

Spruce Pine, N C  
FLOT MILL, feldspar

**FELDSPAR MILLING CO**

Bowditch, N C  
MILL, Yancey Co, dry grinding, feldspar

**FLORIDA ORE PROCESSING CO**

Box 417, Melbourne, Fla  
Pres & Gen Mgr: Frederick A Hauck  
VP: Robert L Holland  
Assts to Pres: Albert E Grogan, G D Slaughter  
Sec: Vincent H Beckman  
Gen Supt: Herman Koepfel  
MINE, Brevard Co, surface, rutile, ilmenite, zircon, garnet, monazite  
Prod: 30 tons  
60-TON GRAV MILL

**FLORIDIN CO**

Warren, Penn  
MINES, Quincy & Jamison, Fla, surface, fuller's earth  
MILLS

**FOOTE CHEM CO**

18 W Chelton St, Philadelphia, Pa  
Pres: G H Chambers  
VP & Prod Mgr: Exton, Pa.  
Plant: F B Shay  
Pl Mgr: A B Chandler  
MINE, Kings Mt, N C, spodumene  
Asst Mgr: E R Goler  
Mill Supt: W R Hudspeth  
Mine Super: C Y Mettauer  
Pl Engr: W A Eldon  
Buyer: F A Dixon  
Office Mgr: R Wuennenberg

**GAMMAGE MINING CO**

Cedartown, Ga  
IRON MINE

**GLIDDEN COMPANY**

Lenoir, N C  
MINE, Lenoir, ilmenite  
PLANT, Baltimore, Md  
(See Calif & Central)

**HARSH PHOSPHATE CO**

Arlington Ave, Nashville 10, Tenn  
Gen Mgr: M G Harsh  
Sec: T L Harsh  
MINE, 3 mi SE of Nashville, surface, phosphate rock  
Prod: 125 tons

**HIGHLAND MINING CORP**

Centerville, Tenn  
Pres: Bill Davis  
PHOSPHATE MINE

**HODGE MINING CO**

118 W Cherokee Ave, Cartersville, Ga  
Owner: J W Hodge  
Sec: M T Shaw  
HODGE MINE, 14 mi W of Cartersville, Fe  
Prod: 375 tons  
Supt: Clyde Shaw  
MINE, Bartow Co, surface, Fe

**HOWARD PHOSPHATE CO**

Box 3028, Orlando, Fla  
Gen Mgr: R M Howard  
MINE, Inverness, Fla, surface, 300-ton bucket dredge, soft, colloidal & hard phosphate  
Mine & Mill Supt: W E Marlow

**HUBER, J M CORP**

Langley, S C  
MINE, kaolin

**HUMPHREYS GOLD CORP**

910 First Natl Bank Bldg, Denver 2, Colo  
Pres: A E Humphreys  
VP: Jay P Wood  
Purch Agt: Vic Frees  
TRAIL RIDGE PL, P O Drawer 631, Starke, Fla, 7 mi SE of Starke, placer, titanium minerals, zircon, staurolite  
Gen Supt: E C Welch, Jr  
Mine Supt: W J Siprelle  
Asst Mine Supt: E S Beebe  
Mine Engr: C J Bastedo  
23,000-TON MILL, wet grav concn & dry elec high-tension & magnet concn  
JACKSONVILLE FL, Box 5492, Jacksonville 7, Fla, 6 mi E of

Jacksonville, placer, ilmenite, rutile, zircon, monazite  
Prod: 8,000 tons  
Gen Supt: Frank M McKinley  
Mine Supt: Homer Lewis  
Asst Mine Supt: A D Whisler  
Mine Engr: Jack Elleidge  
8,000-TON GRAV MILL, wet grav concn & dry elec high-tension & magnet concn  
(Operated by E I du Pont, see East)

**INDUSTRIAL MINERALS INC**

York, S C  
Pres & Gen Mgr: L G Wilson  
VP & Sec: W F Wilson  
KINGS CR MINE, 14 mi W of York, underground, barite  
Prod: 15 tons  
KINGS CR MILL, 45-ton, crush & grind  
MINE, Kershaw, S C, mica

**INLAND STEEL CO**

KEYSTONE & BARNES MINES, Crittenden Co, Ky, CaF<sub>2</sub>  
QUILL MINE, Livingston Co, Ky, CaF<sub>2</sub>  
Gen Supt: W B Robinson  
(See Lake Superior & Central)

**INTERNATIONAL CLAY CO**

Aiken, S C  
MINE, kaolin

**INTERNATL MINERAL & CHEM CORP**

Smithville, Miss  
MINE, Smithville, surf, bentonite  
Mine Supt: M Clay  
Mgt: I L Greene  
300-TON MILL, grinding & pulverizing  
FELDSPAR MINES, N C, Tenn, Va  
PHOSPHATE MINES, Fla, Tenn  
(See Ariz, Colo, Mont, New Mex, So Dak, Wyo, Central & East)

**K T DOME MNG SYND INC**

Gratz, Ky  
GRATZ MINE, Owen Co, Ky, Pb

**KAOLIN PRODUCTS CO**

Aiken, S C  
MINE, kaolin

**KELLOGG CO**

820 Franklin St, Ocala, Fla  
PHOSPHATE MINE

**KENTUCKY FLUORSPAR CO**

Marion, Ky  
VP & Gen Gr: R N Frazer  
MINE, Marion, CaF<sub>2</sub>

**KIBLER-CAMP PHOSPHATE ENTERPRISE**

Ocala, Fla  
Gen Mgr: D B Kibler, Jr  
SEC 12 MINE, Dunnellon, Fla, surface, hard rock phosphate  
Supt: T D Felton  
Asst Supt: N T Farrell  
Prod: 6,000 tons per month

**KINGS MT MICA CO, INC**

Kings Mt, N C  
Pres: James B Preston, Jr  
VP: F B Kendrick  
Treas: Roy H Gunter  
Pl Supt: Paul A Lancaster  
Maint Supt: Marvin W Lancaster  
Ch Elec: James E White

**LONCALA PHOSPHATE CO**

Box 338, High Springs, Fla  
PHOSPHATE MINE

**MARIMEX FLUORSPAR CORP**

Marion, Ky  
Oper: Wm Howard Crider  
GRAV MILL, fluorspar

**MINERAL MINING CORP**

Kershaw, S C  
Pres & Mgr: F C Bingham  
MINE near Kershaw, mica

**MINERAL PROD CORP**

Box 117, Rockford, Ala  
VP: Robert Russell  
PROSPECTS CLAIMS, near Mitchell Dam, Coosa Co, graphite  
PILOT MILL near Rockford  
Idle

**MONETTA CLAY CO**

Wagner, S C  
MINE, kaolin

**MONSANTO CHEM CO**

Columbia, Tenn  
MINE, 8 mi SW of Columbia, surface, dragline excav, phosphate  
Gen Mgr, Phos Div: J L Christian  
Purch Agt: E L Sanderlin

Pl Mgr: E J Bock  
Mine Supt: H A Webster  
Asst Supt: E W Miles  
Engr: R B Shaffer  
Mech Engr: W C Robbins  
Elec Engr: R L Van Fossen  
Safety Engr: A N Allen  
GRAV MILL  
ELC FURN, 25,000-kw, yellow phosphorus  
PLANT, Anniston, Ala

**NATIONAL GYPSUM CO**

Kimballton, Va  
MINE & PLANT, underground, limestone  
Pl Mgr: Monroe Rule  
Mine Supt: James Huffman  
(See Texas, Lake Superior, Central & East)

**NEW JERSEY ZINC CO**

Austinville, Va  
BERTHA MINERAL DIV MINE, Zn, Pb  
2,000-TON FLOT MILL  
Supt: W L Albers  
(See Colo, New Mex & East)

**NORTH CAROLINA FELDSPAR PROD CO**

Erwin, Tenn  
MILL, dry grinding, feldspar

**OWENS AG PHOS CORP**

Centerville, Tenn  
PHOSPHATE MINE

**PENNSYLVANIA SALT MFG CO**

Marion, Ky  
KENTUCKY-BABB & DYERS HILL MINES, Mexico, Ky, fluorspar  
FLOT MILL, Mexico  
DRYING PLANT, Marion  
Supt: Lamont West  
(See East)

**REPUBLIC STEEL CORP**

Birmingham, Ala  
So Dist Mgr: E I Evans  
EDWARDS MINE, Birmingham, underground, Fe  
Prod: 500,000 tons per year  
Mgr: B H McCrackin  
Supt: B C Jones  
Elec Engr: J Donohue  
Ch Engr: R B Watt  
Maint Engr: E Read  
SPAULDING MINE, Birmingham, underground & surface, Fe  
Prod: 400,000 tons per year  
Actg Supt: A F Hellocke  
GRAV CONC  
Prod: 250,000 tons per year  
BLAST FURNACE, E Thomas, Ala  
BLAST FURN & STEEL PL, Gadsden, Ala  
(See Lake Superior, Central & East)

**REYNOLDS MINING CORP**

Reynolds Metals Bldg, Richmond, Va  
Ch of Bd: R S Reynolds  
Pres: Walter L Rice  
VPs: M M Caskie, R S Sherwin, R H Zeglin, J Louis Reynolds  
Treas: R S Reynolds, Jr  
Sec: Allyn Dillard  
Ch Geol: John D Moses  
Safety Engr: J E Nichols  
Purch Agt: M W Henry  
(See Ariz, Colo & Central)

**RIVER & RAIL PHOSPHATE CO**

135 2nd Ave N, Nashville, Tenn  
Pres & Gen Mgr: L H Jordan  
Sec: S E Wheeler  
Gen Supt: Claude Warren  
MINE 6 mi NW of Nashville, Tenn, surface, dragline, raw phosphates, idle  
PLANT, Jordonia, Tenn, idle

**ROBERTS & FRAZER**

Marion, Ky  
MINES, Livingston Co

**RUTILE MNG CO OF FLA**

111 Broadway, New York 6, N Y  
MINE, So Jacksonville, Fla, surface, rutile, zircon, ilmenite  
Prod: 150 tons  
(Leased to Humphreys Gold Corp)

**SCHROEDER CO**

McGregor, Iowa  
Pres: E C Schroeder  
VP: Paul E Schroeder  
Sec: Violet M Schroeder  
Gen Supt: J B Baker  
BELOREEN MINE, Russellville, Ala, 12 mi W of Russellville, surface, iron ore  
Mine Supt: I W Nading  
HEAVY MEDIA MILL

**SEA BOARD PHOSPHATE CO**

Dunnellon, Fla  
PHOSPHATE MINE  
SHOOK & PATTERSON SUPPLY CO  
1814 1st Ave, Birmingham, Ala  
MINERS, SHOOK & PATTERSON, iron ores  
Gen Supt of Mine: A N Shaw  
WARNER & BARNES, 10 mi E of Franklin Co, Fla, surface, iron ore  
HEAVY MEDIA MILLS  
Supt: Edmond J. J. J.

**SLOSS-SHEPHERD STEEL & IRON CO**

Birmingham, Ala  
Pres: Fred Gossage  
VP: Eugene Gossage  
Sec: William Gossage  
Gen Supt: J W Boyd  
Met: Paul Wadsworth  
Geol: Jack Bowers  
Elec Engr: L K Hoffman  
Mech Engr: W A Shannon  
Safety Engr: J A Dwyer  
Purch Agt: H E Foss  
RUSSELLVILLE MINE, 2 mi E of Russellville, Ala, surface, iron ore  
Prod: 750 tons  
Mine Supt: S A Britton  
Asst Mine Supt: Roy Shirley  
Mine Foreman: Hubert Norton  
Mine Engr: W E Hovess  
HEAVY MEDIA MILL  
Prod: 860 tons of hematite per day  
BLAST FURNACE, Birmingham  
Supt: Dan Watkins  
Asst Supt: George Rodledge  
RUFFNER #2 MINE, Irondele, Ala, 7 mi E of Birmingham, underground, iron ore  
Prod: 750 tons  
Mine Supt: P M Cassidy  
Mine Foreman: William Sutton  
Mine Engr: George Jones  
HEAVY MEDIA MILL, 1,600 tons of hematite per day  
Mill Supt: C M Elsberry  
Assayer: P M Walton  
ADKINS MINE, Bibb Co, surface, iron ore  
Supt: E N Vandergrift  
Foreman: H C Guster  
GRAV CONC  
SURFACE MINE & GRAV CONC  
Taite's Gap, Blount Co, iron ore

**SOIL BUILDERS, INC**

Dunnellon, Fla  
PHOSPHATE MINE  
SOUTHEASTERN CLAY CO  
Aiken, S C  
MINE, kaolin

**SOUTHERN MICA CO**

Johnson City, Tenn  
Pres & Gen Mgr: C Bailey Roe  
VP & Gen Supt: J F Reynolds  
Sec: Wanda B Hammett  
SOUTHERN MICA CO OF S C, NE  
Newdale, N C, 8 mi W of Spruce Pine, surface, mica  
Prod: 150 tons  
Mine Supt: George W Edge  
40-TON GRINDING MILL, Johnson City  
Mill Foreman: Haskel Garland  
I H Cole

**STARRETT & LETT**

Pyrton, Ala  
HURST MINE, Clay Co, trimmed & sheet mica

**SUPERIOR PHOSPHATE CO**

Box 478, Dunnellon, Fla  
PHOSPHATE MINE

**SWIFT & CO**

U S Yards, Chicago, Ill  
PHOSPHATE MINE, Bartow, Fla

**TENNESSEE COPPER CO**

Copperhill, Tenn  
BURRA BURRA, BURRA, BOWEN, CALLOWAY & MARY MINES, Au, Ag, Cu, Zn, Fe  
Prod Mgr: C H McNaughton  
Supt: H F Kendall  
3,000-TON FLOT MILL  
Supt: F M Lewis  
Prod: 1,000,000 tons per year  
(See East)

**TENNESSEE VALLEY AUTHORITY**

Knoxville, Tenn  
Gen Mgr: John Oliver  
Gen Supt: H R Mosley  
Geol: R S Ingle  
Mech Engr: Henry T Puz  
KNOB CREEK, Columbia, Tenn



3 mi N of Columbia, surface, phosphate  
Under development  
Prod: 1,000 tons  
Mines Supt: Charles A Irwin

**THOMPSON WEINMAN CO**  
Carleville, Ga  
BARITE MINE

**TONCRAE MNG CO, INC**  
2811 Greenwood Ave, Wmsn Rd, Roanoke, Va  
Pres & Gen Mgr: CH Thompson  
VP: W J Durkin  
Sec: Leo Howard  
Purch Agt: C H Thompson  
TONCRAE #1 MINE, Rt 6, Floyd, Va, Cu, Fe  
Supt: H C Harmon  
Asst Supt: Robert Conner  
Foreman: Cecelia Pratt  
WOASTING, LEACH & PRECIP PLANT  
Prod: 60 tons

**TUNGSTEN MNG CORP**  
Box 81, Henderson, N C  
Gen Mgr: J R Sweet  
Asst Gen Mgr: B B Bailey  
Ch Engr: A M Seykiewski  
Master Mech: W F Edwards  
Purch Agt: G V Boyd  
HAMME MINE, undergrd, WO<sub>3</sub>  
Prod: 600 tons  
Mine Supt: J C O'Donnell  
Mine Foreman: E H Roberts  
Mine Engr: R M Richmond  
600-TON GRAY-FLOT MILL  
Mill Supt: J V Hamme  
Mill Foreman: R Lee Angel  
Assayer: S B Adams  
(See East)

**U S GYPSUM COMPANY**  
Plasterco, Va  
Gen Mgr: H D Decker  
NUMBER SIX MINE, at Plasterco, undergrd, gypsum  
Prod: 900 tons  
Mine Supt: R C McNamee  
Mine Foreman: D R Davis  
(See Calif, Colo, Mont, Nev, Utah, Wash, Lake Superior, Central & East)

**U S STEEL CO**  
TENNESSEE COAL & IRON DIV  
Box 589, Fairfield, Ala  
Pres: A V Wiebel  
Exec VP: John Pugsley  
VP of Oper: J M Spearman  
Mgr, Raw Materials: R E Kirk  
Ch Engr, Raw Mat: S D Michaelson  
Purch Agent: L C Teague  
IRON ORE MINES & COND PL, 8 undergrd mines near Bessemer, Ala  
Prod: 5,500,000 net tons crude iron ore per year  
Gen Supt: A W Beck, Jr  
Asst Gen Supt: J G Creveling  
Supt, Muscoda Div: G M Neal  
Supt, Wenonah Div: P J Zukow  
Supt, Ore Cond Pl: C E Lacy  
ZINC ORE MINE & FLOT MILL, Jefferson City, Tenn  
MINE, undergrd  
Prod: 310,000 net tons crude zinc ore per year  
MILL  
Prod: 300,000 net tons per year  
Gen Supt: Frank B Brophy  
Supt of Mine: J A Miller  
Supt of Mill: S W Forney  
FLUORSPAR DIV  
TABB #1 MINE, Mexico, Ky, Pb, Zn, CaF<sub>2</sub>  
150-TON GRAY-FLOT MILL  
Gen Supt: R R Estill  
Supt: J R Drenan  
Ch Engr: A L Voight  
Ch Met: R W Witt, Jr  
Gen Mine Foreman: D W Martin  
Master Mech: Russell Decker  
Mill Foreman: P N Buckalew  
(See Mont, Utah, Lake Superior & East)

**VICTOR CHEMICAL WORKS**  
Tarpon Springs, Fla  
ELEMENTAL PHOSPHATE PLANT  
(See Calif, Mont, Central & East)

**VIRGINIA-CAROLINA CHEM CORP**  
Box 1797, Richmond 14, Va  
Pres: J A Howell  
VP: C E Heinrichs  
TENN MNG DEPT, Mt Pleasant, Tenn, surface, dragline, phos  
Mgr: R J Grissom  
FLORIDA MNG DEPT, Nichols, Fla, phosphate  
Mgr: H L Pascoe  
7,500-TON FLOT MILL

**WILSON, DUEL M**  
Eufaula, Ala  
BAURITE MINE

**WOOD, L A**  
Sweetwater, Tenn  
BARITE MINE

**WOODWARD IRON CO**  
Woodward, Ala  
Pres: B C Colcord  
VP: Bewitt Smith  
Sec: D T Turnbull  
Gen Supt: John Hager  
Met: F U Leonard  
Safety Engr: Stanley Mooney  
Purch Agt: H K Stokes  
PYNE MINE, 8 mi S of Bessemer, undergrd, iron ore  
Mine Supt: T W Davis  
Asst Mine Supt: W H Thompson  
Mine Engr: T H Kirk  
BLAST FURNACE, Woodward  
Prod: 772,632 net tons per year  
Supt: J B Casey  
Asst Supt: C Y Huff

**YACKIN MICA & ILMENITE CO,**  
(Div of the Glidden Co)  
Box 815, Lenoir, N C  
Gen Mgr: H L Rhodes  
MINE, surface, ilmenite  
100-TON GRAY MILL  
(See Glidden, South, Calif & Central)

**ZONOLITE COMPANY**  
Travelers Rest, S C  
STRIP MINE, surface, vermiculite  
Mgr: J A Kelley  
(See Mont & Central)

## EAST

CONN, DEL, MAINE, MD, MASS,  
N H, N J, N Y, PA, R I, VT, W VA

**ALAN WOOD STEEL CO**  
Conshohocken, Penn  
Pres: J T Whiting  
VP: C E Davis  
Sec: C L Jones  
Elec Engr: A D Howry  
Mech Engr: F C Schoen  
Safety Engr: C D Dorworth  
Purch Agt: G H Lange  
SCRUB OAKS MINE, Dover, N J, undergrd, iron  
Prod: 3,000 tons  
Mine Supt: W P Schenck  
Mine Foreman: Charles Weiler  
Mine Engr: Walter McDougal  
3,000-TON MAG-GRAY MILL, Dover  
Mill Foreman: Harry Hendershot  
BLAST FURNACE, Conshohocken  
Supt: I F Wolfgram  
WASHINGTON MINE  
Supt: Wilfred Keats

**ALLIED CHEM & DYE CORP,**  
GEN CHEM DIV  
40 Rector St, New York 6, N Y  
Pres: M M Biddison  
VP: C M Brown  
Mgr, Mng Oper: R H Dickson  
Asst Mgr, Mng Oper: W J Tripp  
Met: G H Musson  
Geol: E J Langey  
Dir, Furnaces: F J French  
(See Colo, New Mex, Central & South)

**AMERICAN AG CHEM CO, INC**  
50 Church St, New York, N Y  
(See South)

**AMERICAN CYANAMID**  
30 Rockefeller Plaza,  
New York, N Y  
(See Central & South)

**AMERICAN MACH & METALS,**  
TROUT MNG DIV  
233 Broadway, New York, N Y  
Pres: J C Vander Pyl  
VP: C W Anderson  
Sec: F C Keating  
Treas: H T McMeekin  
(See Montana)

**AMERICAN SMLTG & REFIN CO**  
120 Broadway, New York, N Y  
Ch of Bd: Roger W Straus  
Pres: K C Brownell  
Ch of Fin Com: J C Emission  
VPs: E L Newhouse, Jr, R F Goodwin,  
J D MacKenzie, S D Strauss, R D  
Bradford, S H Levison, E W Thornley,  
O W Tuckwood  
VP & Gen Counsel: R W Vaughan  
Treas: O S Straus  
Compt: E C Corson  
Sec: G A Brockington  
Gen Auditor: H W Grose  
SMELTING & REFINING DEPT

VP: J D MacKenzie  
Asst to Pres: R P Reese, Jr  
MINING DEPT  
VP: R F Goodwin  
Gen Mgr for South America:  
W H Loerapabel  
Asst to VP: C P Pollock  
Res Engrs: V I Mann, C E Prior,  
L H Hart  
PURCHASING DEPT  
VP: E W Thornley  
RESEARCH DEPT  
Dir: Dr A J Phillips  
BALTIMORE PLANT, Baltimore, Md  
Mgr: J G Leckie  
COPPER SMELTING  
PERTH AMBOY PLANT  
Mgr: K Harms  
COPPER SMLTG, CONV & REFIN,  
LEAD SMLTG & REFIN  
(See Ariz, Colo, Calif, Ida, Mont,  
New Mex, Utah, Wash & Central)

**ANACONDA COPPER MNG CO**  
25 Broadway, New York, N Y  
Ch of Bd: C F Kelley  
Pres: R E Dwyer  
VP in Charge of Oper: C E Weed  
Exec VP: E S McGlone  
VP & Gen Counsel: R H Glover  
VP in Charge of Mng Oper: R S Newlin  
VP in Charge of Met Oper: Frederick  
Laist  
VPs: E O Sowerwine, F O Case,  
C H Steele  
Compt: W K Daly  
Sec & Treas: C E Moran  
Ch Geologist: V D Perry  
(See Calif, Nev, Mont, Ida,  
Utah & Wash)

**ASHLEY MINING CORP**  
West Rumney, N H  
Pres: H A Ashley  
VP & Engr: E M Shipp  
BERYL MT MINE, Acworth, N H  
& MINES in Grafton Co,  
feldspar, mica, quartz, columbite

**BARTON MINES CORP**  
N Creek, Warren Co, N Y  
Pres: H H Barton  
VP & Gen Mgr: H H Vogel  
Asst Gen Mgr: C R Barton, Jr  
Purch Agt: T Leonard  
GARNET MINE, near North Creek,  
surface  
HMS GRAY-FLOT MILL

**BETHLEHEM CORNWALL CORP**  
701 E Third St, Bethlehem, Pa  
Pres: A F Peterson  
Mgr: S J Shale  
CORNWALL MINE, Cornwall, Pa,  
Fe, Cu, Au, Ag, S  
6,000-TON MAG CONC  
2,500-TON FLOT PL  
2,000-TON SINTERING PL  
GRACE MINE, Morgantown, Pa,  
Fe, S  
MAG CONC, FLOT PL, pelletizing  
plant  
BENJ FRANKLIN GRAPHITE MINE  
(Owned by U S Govt)  
FLOT MILL, under const

**BUTTE COPPER & ZINC CO**  
25 Broad St, New York, N Y  
Pres: A A Sheiare  
VP: M F McDonald  
Sec: J F Cole  
(See Montana)

**CALLAHAN ZINC LEAD CO**  
100 Park Ave, New York, N Y  
Pres: J T Hall  
VP, Chg Oper: R F Mahoney  
Sec-Treas: E A Salo  
(See Alaska, Colo, Idaho & Nevada)

**CAMP BIRD, LTD**  
49 Moorgate, London EC2, England  
70 Pine St, New York, N Y  
Pres: F C Heley  
(U S management by Goldfields  
American Devel Co, Ltd, which see)  
(See Colo)

**CARBOLA CHEM CO, INC**  
Sec: C K Covell  
MINE, Natural Bridge, N Y, talc  
**CASTLE DOME COPPER CO, INC**  
(Wholly-owned subsid of  
Miami Copper Co)  
61 Broadway, New York, N Y  
Pres: E H Westlake  
VP & Treas: J G Greenburgh  
Sec: Henry Kaufman  
Gen Mgr: R W Hughes  
Asst Gen Mgr: B R Coil  
Metal: C H Curtis  
Elec Engr: T J Williams  
Gen Supt: J W Still  
Geol: J Fowells  
Mech Engr: J J Luchessa  
Safety Engr: W R Collier  
Purch Agt: F L Bishop  
(See Arizona)

**CERTAIN-TEED PROD CORP**  
120 E Lancaster Ave, Ardmore, Pa  
Pres: Rawson G Lizars  
VPs: P E Fischer, J V Lizars,  
C K Hobson  
Asst VP: A R Craven  
Sec: Arthur O Graves  
Purch Agt: J I Trolley  
CERTAIN-TEED MINE, Akron, N Y,  
underground, gypsum  
(See Texas, Lake Superior & Central)

**CLIMAX MOLYBDENUM CO**  
500 Fifth Ave, New York 36, N Y  
Pres: A H Bunker  
VP: C M Loeb, Jr  
VP & Treas: W G Thomas  
VP: A Linz  
Sec: L A Cowan  
(See Colo)

**CLIMAX URANIUM CO,**  
SUBSID OF CLIMAX MOLYBDENUM CO  
500 Fifth Ave, New York 36, N Y  
Pres: C L Wilson  
Treas: W G Thomas  
Sec: L A Cowan  
(See Colo)

**CLINTON MET PAINT CO**  
Clinton, N Y  
Asst Treas: D Muir  
MINE, Clinton, hematite

**CONSOL COPPERMINES CORP**  
120 Broadway, New York 5, N Y  
Pres: C D Tripp  
VP: C F Leaman  
Sec-Treas: C L Steegar  
Gen Mgr: A J O'Connor  
(See Nevada)

**COPPER RANGE CO**  
24 Federal St, Boston 10, Mass  
Pres: M F LaCroix  
VPs: J P Lally, P F Beaudin,  
R W Myers  
Asst to Pres: H B Ewaldt  
Treas: D M Goodwin  
Compt: Robert McArthur  
Sec: J R Ackroyd  
C G HUSSEY & CO DIV  
VP & Div Gen Mgr: J P Lally  
VP: R W Myers  
Purch Agt: J G McNeely  
Sales Mgr: E H Seiling  
Credit Mgr: William Glenn  
Pl Supt: C E Pearl  
Ref Supt: James Malok  
Mast Mech: Andrew Herpak  
Ch Elec: C H Wilson  
(See Lake Superior)

**CROUCH MNG CO,**  
SUBSID OF GEN ABRASIVE CO, INC  
Drawer D, Bridge Station,  
Niagara Falls, N Y  
Pres: Alan V Parker  
VP & Gen Mgr: Robert Macdonald, J  
VP: J S Tomlinson  
Geol: L M Richard  
Elec Engr: O J Carpenter  
(See Central)

**DAVISON CHEM CORP, THE**  
Davison Chemical Bldg,  
191 N Charles St, Baltimore 1, Md  
Ch of Bd: C F Hockley  
Vice-Chairman: M G Geiger  
Pres: R L Hockley  
Dir of Chem Oper: F C Nicholson  
(See South)

**DOMINION MANGANESE CORP**  
135 Broadway, New York 6, N Y  
Pres: Alexander C Barker  
VP: J van Tijn  
Sec: Emil L Feigenbaum  
(See South)

**DU PONT de NEMOURS,**  
E I & CO  
Pigments Department,  
1007 Market St,  
Wilmington, Del  
(See Humphreys Gold Corp,  
South)

**EASTERN MAGNESIA TALC CO, INC**  
206 Bank St, Burlington, Vt  
Pres: E W Magnus  
VP: Roy L Patrick  
Gen Mgr: W W Magnus  
NO 2 MINE, 2 mi S of  
Waterbury, Vt, undergrd, talc  
Prod: 100 tons  
Mine Supt: Maurice G Eastman  
Mine Foreman: Earl Clifton  
100-TON DRY GRINDING MILL  
NO 4 MINE, 5 1/2 mi N of  
Johnson, Vt, undergrd, talc  
Prod: 150 tons  
Mine & Mill Supt: Roger W Perkins  
Mine Foreman: Cliff Allen  
100-TON FLOT-DRY GRINDING MILL  
Mill Foreman: Alden Sargent

**RY GYPSUM CO., INC**  
 2 Powers Bldg, Rochester 14, N Y  
 es: Frederick G. Boushy  
 P & Gen Mgr: Clarence M Winslow  
 Sec: Mary E McConville  
**WHEATLAND MINE**, Wheatland  
 P.O. Caledonia, N.Y., undergrd, gypsum  
 Mine Supt: Francis Hammond  
 Mine Foreman: Earl Scharlau  
**MILL & GYPSUM BOARD PL**  
 Mill Foreman: Mathew Rossney

**EMPIRE STAR MINES CO., LTD**  
 14 Wall St, New York 5, N Y  
 Pres: J.R. Mann  
 Sec: John E.D. Grunow  
 Treas: Walter P. Schmid  
 Gen Mgr: H.R. Fitzpatrick  
 Purch Agt: William Carman  
 (See Calif)

**FEDERAL MNG & SMLTG CO**  
 120 Broadway, New York, N Y  
 Pres: K.C. Brownell  
 VP: R.F. Goodwin  
 Gen Mgr: J.E. Berg  
 Pers Mgr: L.I. Markel  
 Purch Agt: Perry L. White  
 (See Idaho & Central)

**FOOD MACH & CHEM CORP.**  
**WESTVACO CHEM DIV**  
 405 Lexington Ave, New York, N Y  
 (See Calif, Nev & Wyo)

**GENERAL ABRASIVE CO INC**  
 Niagara Falls, N Y  
 Pres: A.V. Parker  
 VP: R. MacDonald, Jr  
 Gen Mgr: L.M. Richard  
 (See Crouch Mng Co, Central)

**GOLDING KEENE CO**  
 Box 2151, Trenton 2, N J  
**COLONY & KIDDOR MINES**,  
 Alstead, N.H., feldspar, mica,  
 quartz

**GOVERNUR TALC CO, INC**  
 Box 176, Gouverneur, N Y  
 MINE, Gouverneur, talc &  
 soapstone

**GRAPHITE MINES, INC**  
 Box 92, Auburn Station,  
 Cranston, R I  
 Treas: P.T. Kaine  
**OPERATIONS**, Providence Co,  
 graphite

**GREAT LAKES CARBON CORP**  
 18 E 48th St, New York, N Y  
 (See Colo, Calif, Nev, New Mex  
 & Oregon)

**GREER LIMESTONE**  
 Morgantown, West Va  
**MINE**, Rt 7, Morgantown,  
 limestone

**HARTFORD TALC & QUARTZ CO**  
 Bel Air, Md  
**MINE**, Duablin, Md, talc &  
 soapstone

**HOWE SOUND CO**  
 730 Fifth Ave, New York, N Y  
 (See Howe, Wash;  
 Calera, Utah & Idaho)

**INSPIRATION CONSOL COPPER CO**  
 25 Broadway, New York 4, N Y  
 Pres: W.D. Thornton  
 VP: R.S. Newlin  
 VP & Gen Mgr: P.D. Honeyman  
 Sec-Treas: H.M. Jacob  
 Pers Mgr: L.E. Caldwell  
 Auditor: E.M. Bredwell  
 (See Arizona)

**INTERNATL MNG & CHEM CORP**  
**FELDSPAR MINES**  
 Maine, New York &  
 New Hampshire  
 (See Ariz, Colo, Mont, New Mex,  
 So Dak, Wyo, Central & South)

**INTERNATL SALT CO, INC**  
 Retsof, N Y  
 Pres: E.L. Fuller  
 VP: H.M. Griffith  
 VP: H. Osborn  
**RETISOFF MINE**, 4 mi W of Genesee,  
 N Y, underground, rock salt  
 Gen Mgr: T.F. Courthope  
 Purch Agt: J.A. Cooney  
 Pl Mgr: S. Martin  
 Mech Engr: R. Goets  
 Elec Engr: D.L. Moynes

**INTERNATL SMLTG & REFIN CO**,  
 A SUBSID OF ANACONDA  
**COPPER MNG CO**  
 25 Broadway, New York, N Y  
 Pres: C.F. Kelley  
 VPs: Frederick Laise & E.O.  
 Sowerwine  
 Sec-Treas: C.E. Moran  
 Compt: W.K. Daly  
**RARITAN COPPER WORKS**,  
 Perth Amboy, N Y  
**PERTH AMBOY SMELTER**, Cu

**INTERNATL TALC CO, INC**  
 Box 296, Gouverneur, N Y  
**WIGHT "I" & "A" MINES**,  
 Gouverneur, N Y, undergrd,  
 talc & soapstone

**JOHNS-MANVILLE**  
 22 E 40th St, New York 16, N Y  
 Ch of Bd: L.M. Cassidy  
 Pres: A.R. Fisher  
 VP: K.W. Huffine  
 Purch Agt: S.F. Curtis  
 (See Calif)

**JONES & LAUGHLIN STEEL CORP.**, NEW YORK ORE DIV  
 Star Lake, New York  
 Ch of Bd: Admiral Ben Moreell  
 Pres: C.C. Henning  
 Mgr: W.R. Webb  
 Asst Mgr: R.G. Fleck  
 Mine Geol: Fred West  
 Ch Mng Engr: Einar Smeby  
 Res Engr: Carl Djurvik  
 Mine Indus Engr: Dave Richardson  
 Safety Super: Ray Wagner  
**RENSON MINES**, 32 mi E of Gouverneur,  
 N Y, surface, Fe  
 Mine Gen Foreman: W.P. Bach  
 Mine Repair Foreman: Steve Benchik  
 Mine Shift Foreman: H. Burrell  
 L. Smith, F. Hamilton, Elmer Martin  
 Secondary Drilling Foreman: George Kinney  
 Elec Engr: R.F. Peterson  
 Mast Mech: P.L. Versteeg  
**CRUSHING PL & CONC**  
 Met: R.E. Durocher  
 Gen Foreman: W.A. Vickers  
 Conc Shift Foreman: George Klock  
 Conc Shift Foreman: Richard Jones,  
 W. Maybee & Irving Peck  
 Pl Rep Foreman: W. McCabe  
 Conc Rep Foreman: E. Bonville  
 Crusher Rep Foreman: G. Robinson  
 Capacity: 1,300,000 tons per year  
**SINTER PLANT**  
 Gen Foreman: Ralph West  
 Pl Foremen: Stan Coloton, D. Daniels,  
 A. Gleadie, E. Marcell  
 Repair Foreman: H. Cooper  
 Capacity: 850,000 tons per year  
 (See Lake Superior)

**KENNECOTT COPPER CORP**  
 161 E 42nd St, New York 17, N Y  
 Pres: C.R. Cox  
 VP, West Mng Divs: J.P. Caulfield  
 VP, Explor: Anton Gray  
 VP, Legal: R.C. Klugechheid  
 VP, Ch of Research: Leslie G. Jenness  
 VP: Frank R. Milliken  
 Treas: E.S. Hann  
 Sec: Robert C. Sullivan  
 Compt: G.B. Russell  
 Gen Purch Agt: R.P. Lamborn  
 Gen Traffic Mgr: R.E. Taylor  
 (See Ariz, Nev, New Mex & Utah)

**LOOMIS, W.H., TALC CORP**  
 223 E Main St, Gouverneur, N Y  
 Pres: E.W. Magnus  
 VP: Donald Hagar  
 Sec: A.P. Loomis  
 Gen Mgr: E.E. Eucklisen  
 Prod Mgr: B.B. Bailey  
**ARNOLD #1, WOODCOCK #3 (idle),**  
**& ONTARIO #4 MINES**, 8 mi from  
 Gouverneur, undergrd, talc  
 Supt: Stanley Kio  
 Foremen: A.D. Leary (Arnold),  
 Leslie Hull (Woodcock),  
 Arthur Craig (Ontario)  
 Engr: D.G. Ryder  
**MILLS #1, 2, & 3, Fowler, N Y**  
 Supt: Leonard Breeman, Jr  
 Foremen: Harold Fowler (#1),  
 Byron Gale (#2), Claude Noble (#3)

**MATTHIESSEN & HEGELER ZINC**  
**MEADOWBROOK PL**, Spelter, W Va,  
 Zn  
 (See Central)

**MIAMI COPPER CO**  
 61 Broadway, New York 5, N Y  
 Pres: E.H. Westlake  
 VP & Treas: John G. Greenburgh  
 VPs: M.A. Caine, J.H. Follitt  
 Sec: Henry Kaufman  
 (See Arizona)

**MICHIGAN LIME & CHEM CO**  
 Hershey, Pa  
**HERSHEY PLANT**, limestone

**MOLYBDENUM CORP OF AMERICA**  
 500 Fifth Ave, New York, N Y  
 Head Oper Office, Washington, Pa  
 Grant Bldg, Pittsburgh, Pa  
 Pres: Marx Hirsch  
 Exec VP: Emil A. Lucas  
 Works Mgr: E.F. Lucas,  
 Washington, Pa  
 William P. Allen, York, Pa  
 Sec: James S. Crawford  
 Treas: William B. Kuntz  
 Mets: E.F. Lucas, Norman Tisdale, Sr.,  
 Norman Tisdale, Jr., William G. Wilson  
 Mech Engr: Alan Harju  
 (See Calif, Colo, New Mex)

**NATL GYPSUM CO**  
 325 Delaware Ave, Buffalo 2, N Y  
 Ch of Bd of Dirs: M.H. Baker  
 Pres: L.R. Sanderson  
 Treas: W.W. Corrie  
 Sec: D.B. Littlewood  
 Controller: R.H. Means  
 Dir of Purch: E.T. Obenchain  
 Ch Engr: S.D. Skinner  
 Supervisor, Mines & Quarries:  
 D.E. Eilertsen  
**MINE & PLANT**, Bellefonte, Pa,  
 underground, lime  
 Pl Mgr: L.H. Seufert  
 Mine Supt: L.S. Liles  
**QUARRY & PL**, York, Pa, lime  
 Pl Mgr: W.W. Wallace  
 Quarry Supt: C.E. Tesnow  
 (See Tex, Lake Superior,  
 Central & South)

**NATL LEAD CO**  
 111 Broadway, New York 6, N Y  
 Pres: J.A. Martino  
 VP: H.C. Wildner  
 Mgr, Mng Dept: Gloyd Wiles  
**TITANIUM DIV**  
**MACINTYRE DEVEL**, Tahawus,  
 30 mi N of North Creek, N Y,  
 surface, Ti, Fe  
 Pl Mgr: P.W. Allen  
 Asst Pl Mgr: J.A. Poll  
 Purch Agt: Leon de Polac  
 Gen Supt: C.R. Bofor, Jr  
 Mine Supt: C.R. Begor, Sr  
 Geol: John Holland  
**4,000-TON GRAY-FLOT-MAG MILL**  
 Supt: J.J. Strohl  
 Foremen: W.P. Jenkins, E. Geroux  
 Assay: H.M. Davies  
**THREE PAN GREENAWALT SINTERING**  
 Pl Supt: R.A. Kingman  
 Prod: 4,000 tons  
 (See Calif, So Dak, Nev, Texas,  
 Wyo & Central)

**NEW JERSEY ZINC CO**  
 160 Front St, New York 38, N Y  
 Ch of Bd: H. Hardenbergh  
 Pres: R.L. McCann  
 Gen Mgr Mines: S.S. Goodwin  
 Gen Purch Agt: W.J. Lee  
**MINES**, Franklin & Ogdensburg,  
 N J, Zn  
**MAG & GRAV MILLS**  
 (See Supt: W.F. Evans  
 (See Colo, New Mex & South))

**NEW YORK-ALASKA GOLD DREDGING CO**  
 41 Broad St, New York, N Y  
 (See Alaska & Wash)

**NEWMONT MNG CORP**  
 14 Wall St, New York 5, N Y  
 Pres: Fred Searls, Jr  
 Exec VP: Franz Schneider  
 Sec: Carroll Searls  
 (See Empire Star Mines, Calif &  
 East, Idaho & Resurrection,  
 Colo; Goldfields Deep Mines, Nev;  
 Magna Copper, Ariz)

**NORTON CO**  
 Worcester 6, Mass  
 Pres: M.P. Higgins  
 VP & Gen Mgr: A.B. Holmstrom  
 Sec: M.N. Pilsworth  
 Treas: W.J. Magee  
 (See Central)

**OZARK-MAHONING CO, MNG DIV**  
 Wilmington, Del  
**FLUORSPAR FILTER CAKE DRYING PL**  
 Supt: W.V. Kuster  
 (See Colo, New Mex & Central)

**PECHNEK BROS**  
 Box 233, South Paris 3, Me  
**FRED STEARNS**, Twitchell,  
 Mt Marie, Thomas & Roy  
 Wardell Mines, Oxford Co

**PENN SALT CO**  
 1000 Widener Bldg,  
 Philadelphia  
 (See South)

**PHELPS DODGE CORP**  
 40 Wall St, New York 5, N Y  
 Ch of Bd: L.M. Cassidy  
 Pres: R.G. Page  
 VPs: C.E. Dodge, J.B. Bryson  
 Asst VP & Sec: J.M. Harkness  
 Compt: J.M. Harkness  
 Asst Compt: J.M. Harkness  
 A.F. Petersen  
 Treas & Asst Mgr: W.W. Tisdale  
 Asst Sec-Treas: W.W. Tisdale  
 Asst Treas: H.B. Tisdale  
 Gen Purch Agt: W.W. Tisdale  
 Gen Traffic Mgr: W.W. Tisdale  
 Asst Gen Traffic Mgr: W.W. Tisdale  
 (See Ariz, New Mex, Texas)

**PHELPS DODGE REF CO**  
 40 Wall St, New York 5, N Y  
 Pres: W.C. Bennett  
 VPs: C.E. Dodge, C.S. Hargis  
 Asst VP: Howard Harkness  
 Sec & Counsel: J.B. Tisdale  
 Compt: J.M. Harkness  
 Asst Compt: Raymond Soder  
 Treas: M.W. Tisdale  
 Asst Treas: H.R. Dumas, R.D. Dumas  
**LAUREL HILL REF & SMLT**,  
 Laurel Hill, N Y  
 Works Mgr: David L. Wynn  
 Produces elec copper, copper  
 sulfate, nickel sulfate, arsenic  
 tellurium  
 (See Texas)  
 (See Phelps Dodge, Ariz, New Mex,  
 East)

**REPUBLIC STEEL CORP**  
**OLD BED, HARMONY & FISHER**  
**HILL MINES**, Mineville, N Y,  
 underground, Fe  
 Mgr: W.J. Linney  
 Asst Mgr: F.J. Myers  
 Supt: J.B. Brennan, J.R. Martin  
 Engr: W.A. Bonomstra  
 Maint Supt: M.L. Dandorff  
 Ch Engr: A.K. McCallen, Jr  
 Prod: 2,000,000 tons per year  
**MAGNETIC MILL**  
 Supt: L.E. Dufrene  
 Assay: J. Jacka  
 Ch Elec: J.R. Brennan, Jr  
 Prod: 1,300,000 tons per year  
**CHATEAUGAY MINE**, Lyon, N Y,  
 N Y, underground & surf, Fe  
 Mgr: W.J. Linney  
 Asst Mgr: A.G. Crushberg  
 Supt: Jos. Tolosky, Sr  
 Ch Engr: P.J. McMenamin  
 Maint Supt: Howard Platt  
 Elec: Peter Daniels  
 Prod: 1,250,000 tons per year  
**CHATEAUGAY MILL**, magnetic  
 Supt: E. Furness  
 Assay: J.M. Scott  
 Prod: 385,000 tons conc per year  
 (See Lake Superior & Central)

**RICHARD ORE CO**,  
**SUBSID COLO FUEL & IRON CORP**  
 Wharton, N J  
**RICHARD MINE**, near Wharton,  
 underground, Fe  
 Supt: Richard Dockery  
 Safety Engr: W.P. Galligan  
 Mine Engr: A.J. Gera  
 Mech Engr: J.J. Burchka  
 Elec Engr: George Gaxthorn  
 Elec: Harry Martin  
**600-TON MAGNETIC MILL**  
 Supt: P.W. Keim

**RINGWOOD IRON MINES, INC**  
 Ringwood, N J  
 Pres & Gen Mgr: Lewis Sanders  
 VP: D.A. Goodkind  
 Sec: C.S. Stern  
**PETERS & CANNON MINES**, Ringwood  
 45 mi NW of N.Y., Fe, under devel  
 Supt: B.R. DeLucas  
**PETERS MILL**, 2,000-ton mag-gr  
 Supt: W.A. Kaattari  
 Asst Supt: N.K. Karchmer  
 Foreman: W. Stephens

**RUBEROID CO, THE**  
 500 5th Ave, New York, N Y  
**VERMONT ASBESTOS MINES DIV**,  
 Hyde Park, Vt  
 Gen Mgr: M.J. Messel  
 Purch Agt: K. Foster  
**VERMONT ASBESTOS MINES**,  
 Hyde Park, asbestos, chrysotile  
 Supt: Morgan Potter  
 Engr: John Stewart  
**MILL**, Lowell, Vt, crushing &  
 air sep  
 Supt: Carl White

**ST JOSEPH LEAD CO**  
 250 Park Ave, New York, N Y  
 Ch of Bd: C.H. Crane  
 Pres: Andrew Fletcher

VP & Treas: B I Bridgen  
Sec: Robert Bonnett  
Gen Mgr: R F Murphy  
EDWARDS & MALMAT MINES,  
Halmat, 30 Lawrence Co, N Y,  
underground, ZnS, PbS, FeS<sub>2</sub>  
2 250-TON FLOT MILL  
ELECTROLYTIC ZINC SM,  
Josephtown, Pa  
Prod: 90,000 tons Zn per year  
30,000 tons ZnO per year  
(See Central)

SHATTUCK DENN MNG CORP  
120 Broadway, New York 5, N Y  
Pres: Thomas Birdson  
VP: S S Shattuck  
Sec: Norman E LaMond  
(See Ariz & New Mex)

SNYDER MINING CO  
812 Oliver Bldg, Pittsburgh, Pa  
Pres: W P Snyder, Jr  
VP: H M Wilson  
Asst to Pres: A L Fairley, Jr  
Sec: L B Perrin  
Treas: J K Foster  
(See Lake Superior)

SOUTHWEST POTASH CORP  
81 Broadway, New York 6, N Y  
Pres: Heath Steele  
VPs: John Payne, Jr,  
T G Moore, Thomas Camp, Jr &  
Thomas Childs  
(See New Mex)

STANDARD LIME & STONE  
Bellefonte, Pa  
MINE, limestone

TENNESSEE COPPER CO  
81 Broadway, New York 6, N Y  
Pres: E H Westlake  
VP & Gen Mgr: T A Mitchell  
(See South)

TRI-STATE ZINC CO  
70 Pine St, New York 5, N Y  
Pres: C O Lindberg  
VP & Gen Mgr: M H Loveman  
Sec: J H Nicholls  
Asst Gen Mgr: V C Allen  
(See Central)

TRUSIANI, CESARE  
Topsham, Mn  
DESMOND MATCH, Topsham,  
feldspar, mica & quartz

TUNGSTEN MNG CORP  
500 5th Ave, New York 18, N Y  
Pres: H S West

VP: W L Long  
Gen Mgr: J R Sweet  
Sec-Treas: H V Dorr  
Purch Agt: G V Boyd  
(See South)

U S GYPSUM CO  
MINE, Falls Village, Conn,  
surface, limestone  
MINE, Farnams, Mass,  
surface, limestone  
MINE, Oakfield, N Y,  
underground, gypsum  
(See Calif, Colo, Mont, Nev,  
Tex, Utah, Wash, Lake Superior,  
Central & South)

U S METAL REF CO  
(Controlled by Amer Metal Co, Ltd)  
61 Broadway, New York, N Y  
Ch of Bd: Walter Hochschild  
Pres: Hugo de Neufville  
Sec: T W Childs  
VP & Mgr: F H Dyke  
Asst Mgr: Douglas Tennant  
SMELTER & REFINERY,  
Cateret, N J, Cu, Ag, Au  
Prod: 144,000 tons Cu per year  
60,000,000 oz Ag per year  
900,000 oz Au per year  
40,000 tons misc per year

U S POTASH CO  
30 Rockefeller Plaza,  
New York, N Y  
Pres & Gen Mgr: H M Albright  
VP & Gen Counsel: Paul Speer  
VP: Thomas M Cramer  
Sec-Treas: Walter F Dingley  
Asst Sec: Gertrude B Stiehler  
Controller: J H Hadfield  
(See New Mex)

U S SMELTING REFINING  
& MINING CO  
75 Federal St (Box 2137)  
Boston, Mass  
Pres: F S Mulock  
(See Alaska, Ariz, Utah & New Mex)

U S STEEL CORP,  
AMERICAN STEEL & WIRE DIV  
Donora, Pa  
DONORA ZINC WORKS  
(See Central)  
(See U S Steel)

U S STEEL CORP  
525 William Penn Place,  
Pittsburgh 30, Pa  
Ch of Bd of Dir: B F Fairless

Vice Ch of Bd of Dir: R M Blough  
Ch of Fin Com: E M Voorhees  
Vice Ch of Fin Com & Compt: R C Tyson  
Pres: C F Hood  
Gen Counsel: N L Miller  
Exec VP-Com: D F Austin  
Exec VP-Oper: H B Jordan  
Exec VP-Engr & Raw Materials:  
M W Reed  
Exec VP-Acctg: G W Rooney  
Sec: B L Rawlins  
Treas: H E Isham  
(See Mont, Utah, Lake Superior & South)

U S VANADIUM CO,  
DIV UNION CARBIDE & CARBON CORP  
30 East 42nd St, New York 17, N Y  
Pres: W E Remmers  
VPs: J H Spillane, O F Holmgren  
Gen Mgr: A P Cortelyou  
Purch Agt: L E McCarty  
(See Colo)

UNIVERSAL ATLAS CEMENT CO  
100 Park Ave, New York 17, N Y  
Compt: H C Schmielau  
OPERATIONS, Clarence Center, N Y,  
gypsum

VANADIUM CORP OF AMER  
420 Lexington Ave, New York 17, N Y  
Pres: A C Keeley  
VP: G C Floyd  
VP & Sec: B O Brand  
Purch Agt: S W Stewart  
Treas: L C Miller  
(See Colo, New Mex, Ariz & Utah)

VERMONT ASBESTOS  
MINES DIV  
(See The Rubberoid Co)

VERMONT COPPER CO, INC  
South Strafford, Vt  
Pres: John F Cowley  
VP: John F Cowley  
Sec: Stanley C Wilson  
Met: John W Sheedy  
Geol: Dr Aime K Mikkola  
Elec Engr: Joseph T MacLay  
Safety Engr: Ralph N Bancroft  
Purch Agt: Harold I Davis  
ELIZABETH, ELY & PIKE HILL  
MINES, 2 mi SE of South Strafford,  
underground & surface, Cu, S, Ag, Fe  
Prod: 265,000 tons per year  
Mine Supt: Clinton L Miller  
Asst Mine Supt: Charles F Banker  
Mine Engr: Richard H Little  
950-TON FLOT MILL

Mill Supt: John W Sheedy  
Mill Foreman: Charles L Adolph  
Assayer: Robert Bonnett  
VERMONT MINERAL  
PRODUCTS, INC  
Chester, Vt  
Pres & Gen Mgr: Stanley F Dorand  
Sec: Walter H Austin  
READING QUARRY, Chester, surf,  
micaceous talc  
Mine Supt: Hollis N Corbin  
GRAV MILL  
Mill Foreman: I S Wheeler

VERMONT TALC CO  
Chester, Vt  
Pres: T A Yager  
Gen Supt: Frederick De Zaine  
MINE, Windham, Vt, talc  
MILL, Chester, Vt

VICTOR CHEMICAL CO  
220 E 42nd St, New York, N Y  
(See Calif, Mont, Central & South)

WARNER COMPANY  
Bellefonte, Pa  
BELL MINE, limestone

WARREN FOUNDRY &  
PIPE CORP

55 Liberty St, New York 5, N Y  
P O Box 392, Dover, N J  
Ch of Bd: Solomon E Shahmoon  
VP: Hugh K Bennett  
Sec-Treas: G C Boothe  
Gen Supt: Allan James  
Purch Agt: Henry R Chudsey  
MT HOPE MINE, Mt Hope, N J,  
underground, magnetite  
Prod: 1,000 tons  
Mine Capt: Kenelm C Winslow  
Asst Mine Capt: John Sheplak  
Foremen: Gregg Sad, Howard Buckingham  
Ch Engr: Jack Haien  
Mine Engr: Thomas J Holland  
Maint Supt: Charles W Struble  
Safety Engr: Randolph Brogan  
1,000-TON FLOT MILL  
Mill Supt: Henry J Schwellenbach

WHITEHALL CO, INC  
17 Battery Pl, New York 4, N Y  
Pres: Eversley Childs  
VP & Gen Mgr: A E Davison  
VP: P B Verplanck  
Sec-Treas: L G Clark  
RUGGLES MINE, Grafton, N H,  
surface, feldspar, mica, beryl,  
spodumene

# MAGMA COPPER COMPANY

Buyers of

**COPPER, GOLD  
AND SILVER ORES**

**MINES AND SMELTER AT  
SUPERIOR, ARIZONA**

## International Smelting and Refining Co.



Buyers of

Copper, Silver & Gold  
Ores and Concentrates:

Copper Smelter—Miami, Arizona  
Address: Ore Purchasing Department  
International Smelting and Refining Co.  
P. O. Box 1265  
Miami, Arizona

Lead & Zinc Ores  
and Concentrates

Lead and Lead-Zinc Smelter } Tooele, Utah  
Lead-Zinc Concentrator }

Address: Ore Purchasing Department  
**International Smelting and Refining Co.**  
818 Kearns Building  
Salt Lake City, Utah

Please establish contact prior to shipment.



# MINE & MILL MACHINERY INDEX

## And

# DIRECTORY OF MANUFACTURERS

NOTE: This abbreviated Index covers the principal products for mining manufactured by advertisers in MINING WORLD. Addresses for each firm will be found in the Advertiser's index on the back page, or by referring to their advertisement. The 1954 edition of this annual number will include a complete Classified Index of all manufacturers of specialized products for mining, together with a section containing the Catalogs of firms who desire to pre-file them in this edition.

### AGITATORS & CONDITIONERS

Colorado Iron Works  
Columbian Steel Tank Co  
Denver Equipment Co  
Dorr Co  
Elmco Corp  
Galigher Co  
Hardinge Co  
Morse Bros Machinery Co  
Smidth & Co  
Western Machinery Co (Wemco)

### AMALGAMATORS

Denver Equipment Co  
Elmco Corp  
Galigher Co  
Hardinge Co  
Mine & Smelter Supply Co  
Morse Bros Machinery Co

### AUGERS

See Bits

### BAGS

American Brattice Cloth Corp (powder)  
Bemis Bros Bag Co (packing)  
Elmco Corp (fume and filter cloth)  
Portland Woolen Mills (fume and filter cloth)  
Tamping Bag Co (tamping)

### BIN & CHUTE ACCESSORIES

Allis-Chalmers Mfg Co  
Card Iron Works Co  
Chain Belt Co  
Jeffrey Mfg Co  
Kennedy-Van Saun Mfg & Eng Corp  
Ledeen Mfg Co (air-cylinder controls)  
Link-Belt Co  
Smith Engineering Works  
Stephens-Adamson Mfg Co  
Traylor Eng & Mfg Co

### BITS

#### PERCUSSION DRILL BITS & STEEL

Bethlehem-Pacific Coast Steel Co  
Copco Pacific Ltd. (Coromant)  
Ingersoll-Rand Co  
Joy Mfg Co  
Kennametal, Inc.  
Timken Roller Bearing Co  
Western Rock Bit Co

#### DIAMOND & CORE DRILL BITS

Acker Drill Co  
Boyles Bros Drilling Co of Canada (Permaset)  
Chicago Pneumatic Tool Co  
Diamond Drill Contracting Co  
Joy Mfg Co  
Kennametal, Inc.  
Longyear Co., E J  
Smit & Co., Anton (Castolite)(Nicolite)  
Sprague & Henwood, Inc.  
Wheel Trueing Tool Co (Truco)

#### AUGER DRILL BITS

Joy Mfg Co  
Kennametal, Inc.  
Salem Tool Co  
Sprague & Henwood

### BLASTING EQUIPMENT & SUPPLIES

American Cyanamid Co  
Atlas Powder Co  
Coast Mfg Co  
duPont de Nemours & Co, E I

### BLOCKS & SHEAVES

#### TACKLE BLOCKS

Alloy Steel & Metals Co (Pacific)  
Joy Mfg Co  
Sauerman Bros, Inc

#### SHEAVES

Allis-Chalmers Mfg Co  
American Manganese Steel (Amsco)  
Card Iron Works Co  
Jeffrey Mfg Co  
Joy Mfg Co  
Link-Belt Co  
Lake Shore Eng Co  
Nordberg Mfg Co  
Sauerman Bros, Inc  
Sanford Day Iron Works, Inc  
Vulcan Iron Works - Denver

### BLOWERS

See Ventilation Equipment & Blowers

### BODIES

See Trucks & Trailers

### BUILDINGS (METAL)

Bethlehem Steel Co  
Columbian Steel Tank Co

### CARS

See Mine Cars

### CHEMICAL CONCENTRATORS

American Cyanamid Co (Chemico Process)  
Colorado Iron Works Co (Cyanide)  
Denver Equipment Co (Cyanide)  
Dorr Co (Cyanide)  
Morse Bros Machinery Co (Cyanide)  
Traylor Eng & Mfg Co (Cyanide)

### CHEMICALS

See Reagents & Chemicals

### CHUTES

See Bin & Chute Accessories

### CLASSIFIERS

#### MECHANICAL CLASSIFIER

Colorado Iron Works Co (Akins)  
Deister Concentrator Co  
Denver Equipment Co  
Dorr Co  
Humphreys Investment Co  
Link-Belt Co  
Morse Bros Machinery Co  
Western Machinery Co (Wemco)

#### AIR CLASSIFIERS

Hardinge Co  
Sturtevant Mill Co, Boston, Mass

#### HYDRAULIC CLASSIFIERS

American Cyanamid Co  
Colorado Iron Works Co  
Deister Concentrator Co  
Denver Equipment Co  
Dorr Co (Dorrclone)  
Equipment Engineers Inc (Centricclone)  
Hardinge Co  
Humphreys Investment Co  
Western Machinery Co

### COMPRESSORS

Allis-Chalmers Mfg Co  
Chicago Pneumatic Tool Co  
Cooper Bessemer Corp  
Gardner-Denver Co  
Ingersoll-Rand Co  
Joy Mfg Co  
Le Roi Co  
Nordberg Mfg Co  
Worthington Corp, Harrison, N J

### CONCENTRATORS (GRAVITY)

See also Classifiers, Flotation Machines,  
Chemical Concentrators, Magnetic Equipment  
ORE JIGS

Allis-Chalmers Mfg Co  
Denver Equipment Co  
Dorr Co  
Link-Belt Co  
Yuba Mfg Co

#### HEAVY MEDIA SEPARATION

American Cyanamid Co  
Colorado Iron Works  
Dorr Co  
Hardinge Co  
Link-Belt Co  
Western Machinery Co

#### TABLES

Allis-Chalmers Mfg Co  
Deister Concentrator Co  
Denver Equipment Co  
Link-Belt Co  
Mine & Smelter Supply Co  
Western Machinery Co

## **SPIRAL CONCENTRATORS**

Humphrey Investment Co

## **CONVERTORS**

See Pyrometallurgical Equipment

## **CONVEYING EQUIPMENT**

See also Rubber Products

Allis-Chalmers Mfg Co  
Barber-Greene Co  
Bodinson Mfg Co  
Chain Belt Co  
Denver Equipment Co  
Hardinge Co  
Jeffrey Mfg Co  
Joy Mfg Co  
Kennedy-Van Saun Mfg & Eng Co  
Lake Shore Eng Co  
Link-Belt Co  
Smith Engineering Works  
Stephens-Adamson Mfg Co  
Traylor Eng & Mfg Co  
Universal Dredge Mfg Co

## **CRANES**

See Excavators

## **CRUSHERS**

Allis-Chalmers Mfg Co  
Alloy Steel & Metals Co ("Pacific" Jaw)  
Barber-Greene Co  
Denver Equipment Co  
Jeffrey Mfg Co  
Kennedy-Van Saun Mfg & Eng Corp  
Link-Belt Co  
Nordberg Mfg Co (Symons)  
Smith Engineering Works (Telsmith)  
Stephens-Adamson Mfg Co  
Sturtevant Mill Co  
Traylor Eng & Mfg Co

## **DREDGES & DREDGE BUCKETS**

American Manganese Steel (Amsco buckets)  
Bodinson Mfg Co (Dragline dredges)  
Norris Machine Works  
Universal Dredge Mfg Co  
Yuba Mfg Co

## **DRILLING CONTRACTORS**

See Exploration Equipment & Services

## **DRILLS (ROCKS)**

### **PERCUSSION DRILLS**

Atlas (See Copco-Pacific, Ltd)  
Chicago Pneumatic Tool Co  
Cleveland (See LeRoi Co)  
Copco-Pacific, Ltd (Atlas)  
Consolidated Pneumatic Tool Co, 232 Dawes Road,  
London  
Ingersoll-Rand Co  
Joy Mfg Co  
LeRoi Co (Cleveland)  
Thor Power Tool Co  
Worthington Corp, Harrison, N J

### **CRAWLER MOUNTED DRILLS**

Bucyrus-Erie Co  
Ingersoll-Rand Co (Quarrymaster)  
Joy Mfg Co (Heavyweight Champion Blast-Hole  
Drill)

### **DIAMOND DRILLS**

Acker Drill Co  
Boyles Bros Drilling Co of Canada, Vancouver,  
B C

Chicago Pneumatic Tool Co  
Christensen Diamond Products Co  
Ingersoll-Rand Co  
Longyear Co, E J  
Joy Mfg Co  
Sprague & Henwood, Inc

### **AUGER DRILLS AND MISC**

Ingersoll-Rand Co (Calyx)  
Salem Tool Co (Auger)

## **DRYERS & KILNS**

Allis-Chalmers Mfg Co  
Colorado Iron Works Co (Lowden)  
Denver Equipment Co  
Eimco Corp  
Hardinge Co (Ruggles-Coles)  
Joy Mfg Co  
Kennedy-Van Saun Mfg & Eng Corp  
Link-Belt Co  
Morse Bros Machinery Co  
Nordberg Mfg Co  
Pacific Foundry Co  
Smith & Co, F L  
Traylor Eng & Mfg Co

## **DUST COLLECTION EQUIPMENT**

Allis-Chalmers Mfg Co  
Link-Belt Co  
Northern Blower Co (Norbio)  
Sturtevant Mill Co, Boston, Mass  
Westinghouse Electric Corp

## **ELECTRICAL EQUIPMENT & SUPPLIES**

Allis-Chalmers Mfg Co  
Electric Machinery Mfg Co  
General Electric Co  
Harnischfeger Corp  
Westinghouse Electric Co

### **CABLE AND CONDUIT**

Anaconda Wire & Cable Co  
General Electric Co  
Simplex Wire & Cable Co

## **ENGINES**

Allis-Chalmers Mfg Co  
Baldwin-Lima-Hamilton Corp  
Buda Co  
Caterpillar Tractor Co., Peoria, Illinois  
Chicago Pneumatic Tool Co  
Cooper Bessemer Corp  
Cummins Engine Co  
General Motors Corp (Detroit Diesel Div)  
Ingersoll-Rand Co  
International Harvester Co  
Le Roi Co  
National Supply Co (Superior)  
Nordberg Mfg Co  
Worthington Corp

## **EXCAVATORS & ALLIED EQUIPMENT**

See also Tractors & Tractor Accessories

Baldwin-Lima-Hamilton Corp  
Bucyrus-Erie Co  
Harnischfeger Corp (P&H)  
Link-Belt Speeder Corp  
Marion Power Shovel Co  
Thew Shovel Co

## **EXPLORATION EQUIPMENT & SERVICES**

### **INSTRUMENT SURVEY**

Abrams Corp  
Aero Service Corp  
Engineers Syndicate, Inc  
Precision Radiation Instruments, Inc  
Ultra Violet Products, Inc  
U S Instrument Co, Summit, N J

### **DRILLING**

Acker Drill Co  
Boyles Bros Drilling Co (Salt Lake City)  
Boyles Bros Drilling Co of Canada, Ltd.,  
Vancouver, B C  
Havlick Diamond Drilling Co  
Joy Mfg Co  
Longyear Co., E J  
Mc Clintock, R S  
Sprague & Henwood, Inc.

## **FANS**

See Ventilation Equipment & Blowers

## **FASTENERS (BELT)**

Flexible Steel Lacing Co

## **FEEDERS**

### **ORE FEEDERS**

Barber-Greene Co  
Bodinson Mfg Co  
Chain Belt Co  
Denver Equipment Co  
Hardinge Co  
Jeffrey Mfg Co  
Kennedy-Van Saun Mfg & Eng Corp  
Link-Belt Co  
Mine & Smelter Supply Co  
Merrick Scale Mfg Co  
Morse Bros Machinery Co  
Nordberg Mfg Co  
Smith & Co, F L  
Smith Engineering Works (Telsmith)  
Stephens-Adamson Mfg Co  
Western Machinery Co

### **CONSTANT WEIGHT FEEDERS**

Hardinge Co (Feedometer)  
Jeffrey Mfg Co (Waytrols)  
Link-Belt Co  
Merrick Scale Mfg Co (Feedoweight)

### **REAGENT FEEDERS**

Allis-Chalmers Mfg Co  
Clarkson Co (Engineers Syndicate, Inc)  
Denver Equipment Co  
Galigher Co (Geary)  
Mine & Smelter Supply Co (Massco-Adams)  
Stearns-Roger Mfg Co  
Traylor Eng & Mfg Co  
Western Machinery Co (Wemco)

### **RECIPROCATING & VIBRATING FEEDERS**

Bodinson Mfg Co  
Deister Concentrator Co (Concenco)  
Denver Equipment Co  
Hardinge Co  
Jeffrey Mfg Co  
Kennedy Van Saun Mfg & Eng Corp  
Link-Belt Co  
Stephens-Adamson Mfg Co  
Traylor Eng & Mfg Co

## **FILTERS (CONCENTRATE)**

Denver Equipment Co  
Dorr Co  
Eimco Corp  
Galigher Co  
Morse Bros Machinery Co  
Western Machinery Co

**For complete addresses of above  
firms see Advertisers Index**

#### GRAVITY & PRESSURE FILTERS

Denver Equipment Co  
Eimco Corp  
Hardinge Co

#### OIL FILTERS

Winslow Engineering Co

### FLOTATION MACHINES

Denver Equipment Co (Sub-A)  
Galigher Co (Agitair)  
Morse Bros Machinery Co (Weinig)  
Western Machinery Co (Fagergren/Steffensen)

### FURNACES

See Pyrometallurgical Equipment

### GRINDING EQUIPMENT & SUPPLIES

Allis-Chalmers Mfg Co  
Bethlehem Steel Co (balls)  
Colorado Fuel & Iron Corp (balls)  
Colorado Iron Works  
Denver Equipment Co  
Dorr Co  
Eimco Corp  
Hardinge Co  
Kennedy-Van Saun Mfg & Eng Corp  
Lake Shore Eng Co  
Mine & Smelter Supply Co (Marcy)  
Morse Bros Machinery Co  
National Malleable & Steel Castings Co (balls)  
Nordberg Mfg Co  
Sheffield Steel Corp (Moly-Cop balls)  
Smith & Co., F L  
Stearns Roger Mfg Co  
Traylor Eng & Mfg Co

### GRIZZLIES

See Screens, Grizzlies and Accessory Equipment

### HARD-FACING

See Welding Equipment & Supplies

### HOISTING EQUIPMENT

#### MINE SHAFT HOISTS

Lake Shore Eng Co  
Nordberg Mfg Co  
Stearns Roger Mfg Co  
Vulcan-Denver (Denver, Colorado)

#### PORTABLE SCRAPER HOISTS

Eimco Corp  
Gardner-Denver Co  
Ingersoll-Rand Co  
Joy Mfg Co  
Lake Shore Eng Co  
Vulcan-Denver

#### SKIPS & CAGES

Card Iron Works Co  
Jeffrey Mfg Co  
Lake Shore Eng Co  
Link-Belt Co  
Stephens-Adamson Mfg Co  
Vulcan-Denver

### JUMBOS

Chicago Pneumatic Tool Co  
Gardner-Denver Co  
Ingersoll-Rand Co  
Joy Mfg Co  
LeRoi Co

### KILNS

See Dryers & Kilns

### LABORATORIES

#### ORE TESTING, ASSAYING & LABORATORY SERVICE

American Cyanamid Co  
Arizona Testing Laboratories  
Bennetts Chemical Laboratory, Inc.  
Black & Deason  
Colorado Assaying Co  
Denver Equipment Co  
Beach & Co  
Custom Assay Office & Laboratory  
Dickinson Laboratories  
Dorr Co  
Goodall Bros  
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Allis-Chalmers Mfg Co  
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Mine & Smelter Supply Co  
Morse Bros Machinery Co  
Pacific Foundry Co  
Stearns Roger Mfg Co  
Sturtevant Mill Co., Boston, Mass  
Western Machinery Co

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### LOCOMOTIVES

#### BATTERY AND TROLLEY

Baldwin-Lima-Hamilton Corp  
Differential Steel Car Co  
General Electric Co  
Greensburg Machine Co  
Jeffrey Mfg Co  
Mancha Storage Battery Locomotive Div,  
Goodman Mfg Co  
Westinghouse Electric Co

#### COMPRESSED AIR LOCOMOTIVES

Eimco Corp  
Mancha Div, Goodman Mfg Co  
Universal Dredge Mfg Co

#### DIESEL & DIESEL-ELECTRIC

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General Electric Co  
Westinghouse Electric Corp

### LUBRICANTS

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Houghton & Co., E F, Philadelphia, Penn

Standard Oil Co of California  
Union Oil Co

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#### MAGNETIC PULLEYS & SUSPENSION MAGNETS

Dings Magnetic Separator Co  
Stearns Magnetic, Inc

### MILLS

See Grinding Equipment

### MINE CARS & TRACK ACCESSORIES

American Mine Door (car transfers and track equipment)  
Baldwin-Lima-Hamilton Corp  
Bethlehem Steel Co  
Card Iron Works Co  
Differential Steel Car Co  
Lake Shore Eng Co  
National Malleable & Steel Castings Co  
Pressed Steel Car Co  
Sanford Day Iron Works, Knoxville, Tenn  
U S Steel Corp

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### MUCKING MACHINES & FRONT END LOADERS

Eimco Corp  
Gardner-Denver Co  
Joy Mfg Co

#### TRACTOR LOADERS

Bucyrus-Erie Co  
Caterpillar Tractor Co (Trackson), Peoria, Illinois  
Eimco Corp  
International Harvester Co (Hough "Payloader")

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Bethlehem Steel Co  
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Pacific Pipe Co

#### WOOD PIPE

Pacific Wood Tank Corp

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#### ACID PUMPS

Allen-Sherman-Hoff Pump Co (Hydrossal)  
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Dorr Co  
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Hardinge Co  
Ingersoll-Rand Co  
Morris Machine Works  
Nagle Pumps  
Pacific Foundry Co



Willey & Sons, Inc., A R  
Worthington Corp

#### SAND PUMPS

Allen-Chalmers-Hoff Co (Hydrosol)  
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Mace Co  
Pacific Foundry Co  
Stearns Roger Mfg Co  
Traylor Eng & Mfg Co

#### SMEETING FURNACES

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Colorado Iron Works Co  
Denver Fire Clay Co  
Pittsburgh Lecomelt Furnace Corp (Lectro-melt)  
Traylor Eng & Mfg Co

### REAGENTS & CHEMICALS

American Cyanamid Co  
American Potash & Chemical Corp  
Atlas Powder Co  
Denver Fire Clay Co  
Daw Chemical Co  
DuPont de Nemours & Co., E I

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Colorado Fuel & Iron Corp

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Ingersoll-Rand Co (hose)  
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### SAFETY EQUIPMENT

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### SCALES

#### AUTOMATIC WEIGHING & BELT SCALES

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Eimco Corp  
Joy Mfg Co  
Lake Shore Eng Co  
Sauerman Bros, Inc

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#### STATIONARY SCREENS & GRIZZLIES

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Bodinson Mfg Co  
Card Iron Works  
Dorr Co  
Hendrick Mfg Co  
Jeffrey Mfg Co  
Link-Belt Co  
Nordberg Mfg Co  
Smith Engineering Works  
Stephens-Adamson Mfg Co  
Traylor Eng & Mfg Co

#### SHAKING & VIBRATING SCREENS

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Deister Concentrator (Leahy/Heated)  
Denver Equipment Co  
Jeffrey Mfg Co  
Kennedy-Van Saun Mfg & Eng Corp  
Link-Belt Co  
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#### WIRE & BAR SCREENS

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See Thickeners & Tanks

### THICKENERS & TANKS

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Dorr Co  
Eimco Corp  
Galigher Co  
Hardinge Co  
Link-Belt Co  
Morse Bros Machinery Co  
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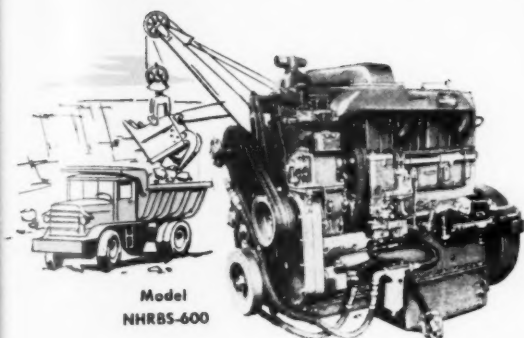
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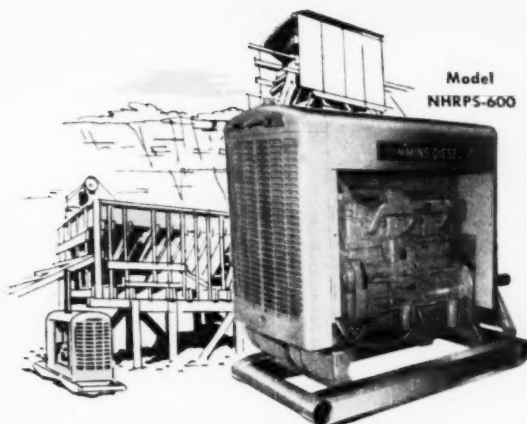
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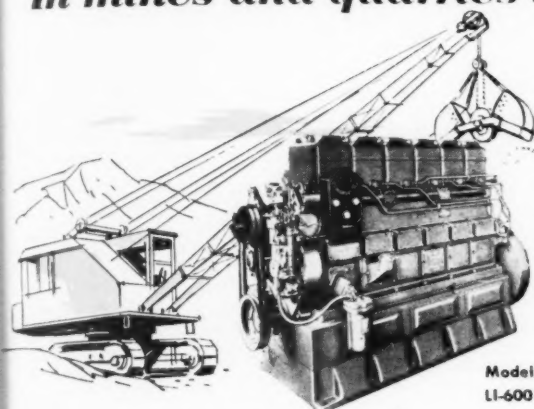


Model  
NHRBS-600



Model  
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Model  
LI-600

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Cylinders . . .	6	4	6	6	6	6	6	6	6	6	6	12	12	6	6
Bore . . . . .	4"	5 1/8"	4 1/8"	4 7/8"	5 1/8"	5 1/8"	4 7/8"	5 1/8"	5 1/8"	5 1/8"	5 1/8"	5 1/8"	5 1/8"	7"	7 1/4"
Stroke . . . . .	5"	6"	5"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	10"	10"
Disp. (Cu. In.) .	377	495	401	672	743	743	672	743	743	743	743	1486	1486	2309	2477
HP (Max.) . . .	100	110	150	150	165	180	200	200	225	275	300	400	550	250	300
RPM (Max.) . .	2200	1800	2500	1800	1800	2000	1800	2100	1800	2100	2100	2100	2100	1000	1100

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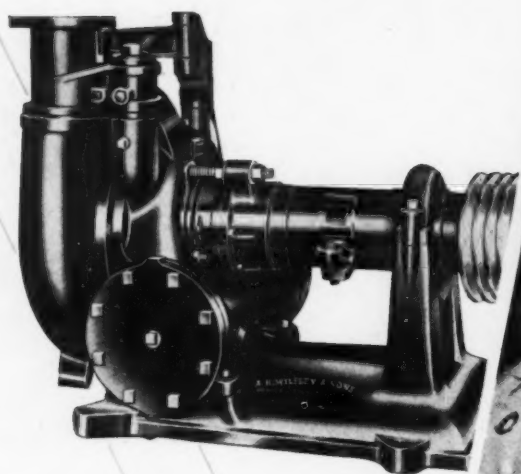
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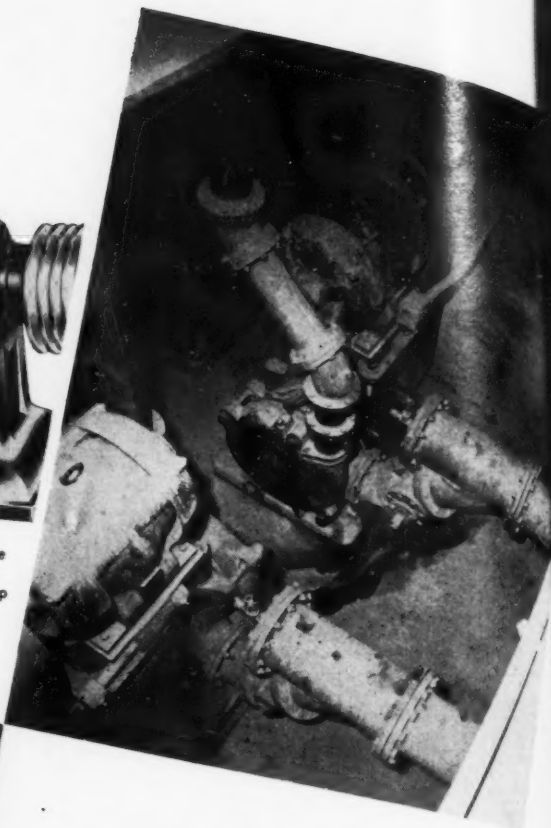
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